DOCUMENT RESUME

ED 167 792 CE 020 246

AUTHOR	Whiteside, Daniel F.; And Others
TITLE	Health Manpower Planning: A Comparative Study in Four Countries. Volume 1. Health Manpower References.
INSTITUTION	Pan American Health Organization, Washington, D. C.
SPONS AGENCY	Health Resources Administration (DHEW/PHS), Bethesda, Md. Bureau of Health Manpower.
REPORT NO	DHEW-HRA-78-94
PUB DATE	78
CONTRACT	HRA-282-77-0211-PS
NOTE	176p.; Parts may not reproduce clearly due to light print
EDRS PRICE	MF01/PC08 Plus Postage.
DESCRIPTORS	Delivery Systems; *Educational Needs; Foreign Countries; Government Role; Health Conditions; *Health Personnel; Health Services; *Manpower Development; *Manpower Needs; Needs Assessment; *Planning; Policy Formation; Program Coordination; Program Evaluation; Program Planning; Public Policy
IDENTIFIERS	Columbia; Ecuador; Honduras; Pan American Health Organization; United States

ABSTRACT

The health manpower planning experiences of four countries reported here were presented in a traveling seminar held for member countries of the Pan American Health Organization. Focus was on what should be carried out in any country to coordinate the training of health workers with the operation of health services. Following the introduction, the content is presented in six chapters. The first one, on the process and background of manpower planning, covers the role of governments, government-university relationships, government structure, and health planning. Chapter 2 discusses the phases in manpower planning, such as analyzing the manpower training and use situation, analyzing the health care system, determining the health and education needs of the population, identifying issues, formulating a health manpower policy and plan, executing the plan, and evaluating the results. The remaining four chapters describe the planning modalities in Columbia, Ecuador, Honduras, and the United States, with each chapter covering the following: the country and its population, health conditions, health services, human and physical health care resources, national health policy, health manpower policy, health manpower units and their programs, and the future. Conclusions and recommendations are presented at the end of this report. (EM)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED167792

Health Manpower References

HEALTH MANPOWER PLANNING

A Comparative Study in Four Countries

Volume 1

Prepared by:
Pan American Health Organization
Under Contract No. HRA 282-77-0211-FS

U S DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service
Health Resources Administration
Bureau of Health Manpower
DHEW Publication No. (HRA) 78-94

CE 020 246

Background

Pan American Health Organization
Traveling Seminar
on
Health Manpower Planning

To identify and discuss activities that should be carried out in any country to coordinate the training of health workers with the operation of health services and thus allow some form of health manpower planning, the Pan American Health Organization organized a Traveling Seminar on Health Manpower Planning at which the experiences of four member countries in this area could be explained and discussed.

The participants in the seminar--15 representatives of 13 member countries--met in Bogotá, Colombia; Quito, Ecuador; Tegucigalpa, Honduras, and Washington, D.C., U.S.A., between 17 April and 3 May 1977. In each of the four capitals they heard speakers from the health manpower unit of the host country's health ministry report on and discuss their experiences and problems. The participants had an opportunity to ask the host-country speakers questions as well as engage in more general discussion with them. This report is the product of the seminar.

Acknowledgements

This publication was made possible through the generous cooperation of the Bureau of Health Manpower, Health Resources Administration, U.S. Department of Health, Education, and Welfare. The Bureau provided the support needed to prepare this report and its officials supplied technical contributions.

We are also greatly indebted to the health authorities of Colombia, Ecuador, and Honduras for making it possible for the seminar's participants to observe and discuss the intricate health manpower planning mechanisms in their countries.

Warm thanks are further extended to Dr. Daniel F. Whiteside, Dr. William H. Cope, Mr. Frank Sis, and the staff of the Bureau of Health Manpower as well as to Dr. Germán Jiménez Rozo, Dr. Roberto Sempértegui Ontaneda, Dr. Jorge Haddad, Mr. Hector Apezechea, and Mr. Alan J. Fitzgibbon for their participation in the preparation of this report.

Preface

In 1972, at their Third Special Meeting, the Ministers of Health approved the Ten-Year Health Plan for the Americas, whose central goal is each country's commitment to extend health services coverage to its entire population.

Considering what the situation was in 1972--and what it still is now--a total coverage goal appeared to be a challenge. At that time it was estimated that health services coverage reached only 70 percent of the population in Latin America and the Caribbean, which left 30 percent (or 85 million people) without access to medical care because they lived in isolated rural areas, had limited income, or were the victims of cultural differences. Taking population growth into account, the target of health services coverage extension would then have been a total of 120 million people whose economic, geographic, and cultural conditions made it difficult to receive the health care that would guarantee their right to health.

Five years later, notwithstanding the progress made, the total coverage goal--though possible--was still not reached. However, the ground gained has allowed us to

appreciate fully the difficulties and problems yet to be resolved.

The Health Ministers recently met again, in 1977, to compare their experiences and results and to discuss the strategies, methods, and resources necessary to broaden coverage.

The achievement of such a goal requires gigantic efforts by all health workers and community participation. It also requires adjustment by those currently responsible for the delivery of health care, a change in the ways in which our institutions act, and transformation of our medical technology in order to have adequate tools for primary care in rural areas.

Such psychological and technological changes will not occur spontaneously during the next few years: they will depend on the existence in every country of a well-thought-out course of action and of an effective co-ordination of health and educational activities.

Finally, we must have qualified manpower of unquestioned dedication. Because health programs can accomplish no more than those who conduct them, the coverage that will one day be offered will depend on the caliber of our health workers. In view of this, we must recognize that the health workers now available are few,

poorly distributed, and underused. In addition, the nature of their training does not favor their use in any effort to extend coverage because their aspirations, which are based on traditional professional practice patterns, run counter to the need for teamwork.

Renewed emphasis was therefore placed on the need for programming, coordination, and planning during the Technical Discussions on "Development of Health Services Infrastructure to Extend Coverage" at the Pan American Health Organization Directing Council meeting in 1977.

Emphasis was also placed on the important role of the manpower programming services system in establishing personnel requirements and in defining each health worker's level and type of training; on the responsibility of service and training institutions to research new personnel combinations and define their functions; and on the responsibility of teaching institutions, in regard to the technical aspects of the teaching-learning process, to train--in the time required--a person in tune with current necessities and capable of pursuing higher education to meet future needs. But these responsibilities cannot be met without a general policy to coordinate efforts and stimulate the process.

In both the industrialized and developing countries

of the Hemisphere the initiative in this area has been taken by health ministry officials who, through their manpower units, have stimulated coordination and plannin in cooperation with teaching institutions.

Because of the emphasis on the new concept of technical cooperation among developing countries, which we are including in our Organization's activities, we believe that before suggesting solutions it is our task to promote the exchange of experiences among the countri which is just what this report tries to do. We hope the experiences reported here will be contributing factors in planning more soundly and precisely the infrastructure necessary for achieving broadened coverage.

Hector R. Acuña
Director

Contents

Background	iii
Acknowledgements	iv
Preface	viii
Introduction	1
Chapter 1: Manpower Planning	9
Chapter 2: Phases in Manpower Planning	22
Chapter 3: Colombia	49
Chapter 4: Ecuador	66
Chapter 5: Honduras	92
Chapter 6: United States	110
Conclusions	151
Seminar Participants and Host-Country Speakers	157

Introduction

In recent decades, interest has increased in estimating how many and what types of personnel will be needed to provide health services in the Americas.

Between the end of World War II and 1960 there was a definite scarcity of trained personnel compared to needs in all sectors. In view of this situation, all additional workers who could be trained were considered an advance. Because of the existing deficit, the precise determination of overall personnel needs in the health field was of no more than academic interest. In Latin America and the Caribbean, this way of focusing on the production of health workers was expressed in the Resolution of Punta del Este of 1960, in which the Hemisphere's Ministers of Health recommended that "enough workers be trained to meet the needs of the health services."

Since 1960 it has been evident that indiscriminate production of health workers in numbers and kinds is not conducive to harmonious manpower development, but rather may result in imbalances, underuse, and unemployment. The entire higher education system in the region then entered a period of questioning and re-

organization. In the health sector there appeared a need to study human resources, make predictions, and--if possible--rationalize the training and use of personnel.

The popularity of developmental planning in Latin America and the Caribbean led to the formulation of development plans in the economic and sometimes the social, educational, and health sectors.

In 1962 the Venezuelan National Economic and Social Development Studies Center in Caracas elaborated a theory and method of health planning which were later disseminated widely in Latin America and the Caribbean by PAHO's Pan American Center for Health Planning in Santiago, Chile. Health planning was begun in most of the countries, and though this did not go as far as planning necessary personnel, it nevertheless created a trend toward rationalizing resource allocation.

This trend was mirrored in several national health manpower studies such as that in Peru in the mid-1960s, the study of *Health Manpower and Medical Education in Colombia* in 1966-68, the study of *Manpower in Chile* in 1968-69, and the *Study of Health and Medical Education* in Argentina in 1969-71.

These studies differed in many ways, including

their goals, the extent to which national institutions participated in them, and their methodology, but each led to interesting findings and together they constituted an essential first step. In addition to forming a useful body of knowledge about health personnel and their activities and working conditions, they taught valuable lessons in strategy. They were undertaken on the assumption that their findings would later be used to rationalize the training and use of future health workers.

But experience showed that however illustrative a study might be, it could not in itself induce planning if health-sector institutions had not participated in it and if coordination mechanisms or some structure were not established to insure the continuation of the efforts and the conversion of the study's findings into action.

This lesson was quickly learned. Among many possible solutions, there thus arose organizations charged with stimulating health manpower development. By the end of the decade there were health manpower units of one kind or another in Argentina, Canada, Colombia, and the United States.

In addition, the training of health professionals

did not escape the basic restructuring of the education sector that began around 1965. It was a time of questions about "the kind of doctor the country needs," and teaching institutions sought new guidelines which the health sector was unfortunately not yet ready to formulate precisely.

In 1972 the Hemisphere's health ministers formulated the Ten-Year Health Plan, whose goals were based on a central premise--the need to extend health service coverage to a country's entire population, whatever its geographic location and financial capacity. For Latin America and the Caribbean, this meant insuring care for 120 million additional inhabitants by the end of the 1970s, a huge task in view of the scarce resources available.

Both the industrialized and developing countries of the Hemisphere desired broadened coverage. In both, health-care coverage of socioeconomically disadvantaged groups--chiefly rural and poor urban populations--cannot be postponed. The magnitude of the problem and the resources available to solve it differ from one country to another, but not its nature.

These goals provided a general framework within which it was possible to orient manpower development.

In 1973, the First Pan American Conference on Health Manpower Planning analyzed the Ten-Year Plan and its implications for health personnel and proposed possible courses of action and working mechanisms.

Between 1973 and 1977, new health-care concepts were developed and previous experiences were reexamined in Latin America and the Caribbean and other parts of the world. In particular, concepts were developed to achieve the goal of broadened care such as the definition of health-care coverage, methods of and stages in extending coverage, its content in terms of benefits and services for the population, and required resources. The participation the community should have in health activities continued to be defined, and as a corollary so did the words "community" and "participation."

The Latin American and Caribbean countries gradually worked out the relationships between the "primary care" concept and their own health organizations. The same period saw an increasing trend toward the integration of health services which ranged from the use of common technical standards by different organizations through various degrees of functional coordination to total integration in a single national health service. Attempts at integration revived interest in regionalizing services

and organizing networks of facilities integrated in a common operating plan.

Just as new trends in health care have appeared, so has the concept of manpower undergone a basic change during the last five years. In the early 1970s, trained health workers, students, and people who might enter training were considered health resources. Now there is an increasing tendency to consider the population itself and its ability to perform in health activities the primary human resource, while professional, technical, or auxiliary health workers, who would reinforce and supplement community activities, are considered the secondary resource.

In the realm of health worker training, teaching institutions are looking for new approaches such as integrated curricula, joint training of different health-team members in health sciences faculties, bringing students into early contact with the community, and integrating them into productive activities at various levels of health care. The need to relate teaching to service is gradually becoming clear, and varied experiments in integrating teaching and care are taking place.

At the same time, efforts are being made to reorganize the use of medical technology, which up to now

has been poorly adapted to the needs and possibilities of developing countries. The creation of a technology suitable to the country where it is to be used, or "appropriate technology," has been suggested so that services and necessary manpower could be reorganized.

Many of these concepts are still being discussed, and this very discussion will create a climate favorable for further analysis and restructuring which in the near future will continue to have major consequences for manpower development.

To fulfill the goal of providing health care to the entire population, it is clear that there is a need to coordinate--and perhaps plan--the development of health manpower in the Hemisphere.

This process could take various forms depending on the specific country. There might be commissions to coordinate health-care and training activities, joint commissions representing health institutions, professional associations, employers, and labor unions, initiatives by universities through faculty and student committees, or formal coordinating and planning mechanisms which are more or less decentralized at the provincial or regional levels.

By 1977, manpower units had been created and de-

veloped in the health ministries of most of the Hemisphere's countries. Among the various possibilities, it is significant that a formal structure has been preferred. This creates a mechanism through which the health ministry initiates the process at the central level by exercising a standard-setting and policy-making role.

At a time when extending or consolidating health-care coverage is an agreed goal in the various countries yet confronted by manpower limitations, it is timely to examine who plans health manpower in both theory and practice with illustrative experiences from four countries--Colombia, Ecuador, Honduras, and the United States.

Chapter 1
Manpower Planning: Process and Background

The process

Manpower planning may be described in various ways, e.g., by pointing out its relationships with general economic and social planning, focusing on its institutional framework, or describing the logical process, i.e., the sequence of operations in preparing and carrying out coordinated manpower development. The last option has prevailed in this comparative study. Although their content differs, the similarity of the logical processes in the various countries of the Hemisphere has facilitated the task.

Figure 1 does not pretend to illustrate all facets of the planning process but rather is intended to point out its steps and highlight the elements in it that are important or warrant special mention. As do all diagrams, it systematizes and brings together a series of activities which in reality are carried out in different institutions and at different times.

Manpower planning has been included within the total social framework. Arrows have been used to show

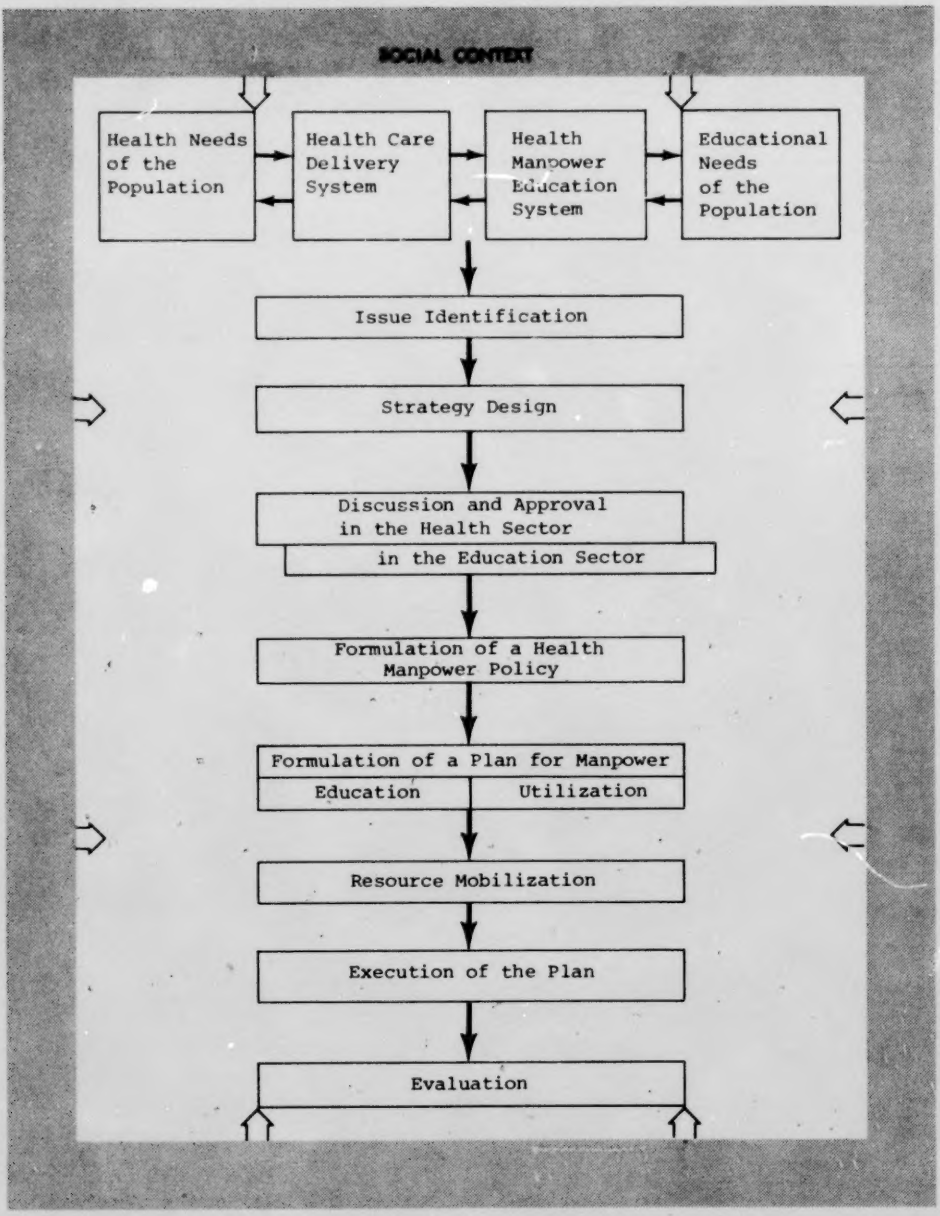


Figure 1. The process.

the determinants that this framework requires in initial analysis and interpretation, identifying problems, establishing policies and plans, and executing and evaluating them. The influence of the total social context on any planning activity is not always obvious.

The process occupies an intermediate position between two opposed planning theories, a restrictive one that considers planning a part of administration and an idealistic one that considers it a social need or societal obligation. There are variations gravitating toward one or the other theory in different countries, but in most the process is not one of decreeing plans but rather of improving coordination among agencies involved in planning.

The background

Various studies and analyses of planning have pointed out several aspects of the social context in which planning is developed. Here we will try to highlight a few aspects of the social reality that have special influence on health manpower planning. Though they have already been dealt with in various studies, these aspects will be treated somewhat differently in this one.

The role of governments. The economic measures adopted to mitigate the effects of the depression of the 1930s in Latin America and the Caribbean--expressed in a 50 percent decrease in imports from industrialized countries--were to some extent reflections of the policies adopted in the nations at the center of the depression, such as intervention in economic life through fiscal regulation and public works in order to absorb unemployed labor.

These phenomena led to a greater regulation of civilian life by the region's governments since it seemed obvious that only they could deal adequately with pressing economic problems.

The end of World War II found several Latin American and Caribbean countries with large hard-currency reserves, a result of vast increases in raw materials exportation during the war. The relative prosperity generated by these reserves and new jobs resulting from urban industrialization attracted increasing numbers of rural residents to cities, where they began to demand a larger share in a wide range of goods and services, among them education and health care.

Between the end of World War II and the mid-1950s, notably in Argentina, Chile, and some parts of Brazil

and Uruguay, this situation led to governmental distribution of resources, partly to satisfy increased consumption demands by urban residents. Especially noteworthy were price subsidy policies, creation of new jobs through the expansion of governmental tertiary activities, increased educational opportunities beyond the primary level, and public health campaigns and the provision of more free medical care to larger segments of the population.

Without doubt, all these changes made governments one of the principal protagonists in the social processes of these countries and to a greater or lesser extent modified the distribution of resources generated by domestic production.

Because of the governments' distributive policies, the surplus of trade and payments balances, which occurred again during the Korean War, was quickly exhausted in a very short while during the 1960s.

The increasing aspirations and expectations of the people, who had known better times and hoped for an indefinite continuation of the economic and social bonanza, were certainly not erased. Two broad processes occurred during the 1960s. On the one hand, Latin American and Caribbean governments went increasingly

into debt to maintain the distributive policy established during the preceding period, and on the other a large number of the region's countries decided to create national economic and social development plans in order to stimulate economic and social development.

For the purposes of this study it is important to consider two factors in analyzing such plans in addition to the luck they experienced. First, government was already seen as the principal protagonist in the economic life of Latin American and Caribbean countries, and, second, manpower considerations were incorporated for the first time in general development plans, though sometimes laterally and incompletely.

During the closing years of the 1960s and the early years of the 1970s, the rigidities in the world raw materials markets continued to increase and, as a result, the external indebtedness of Latin America and the Caribbean grew apace. As to explicit policies with respect to economic and social planning, most countries continued to prepare national development plans and there was an increasing awareness of the need to take the "human factor" seriously into consideration.

This situation, in which Latin American and Caribbean governments were confronted by growing demands by

their people which they could meet only in small part, external indebtedness, and the need to integrate major foreign companies into domestic production systems because those companies created extensive employment in the first instance, meant that governments increasingly "represented" their countries in areas in which private enterprise had formerly competed, while in those areas in which they had not yet assumed responsibility governments exercised regulatory functions.

It is obvious that it will be government which, in its dialogue with the country, should be--and is--forced to draw up plans for the most critical areas of the economy and society which foretell and modify events in those and other areas. The problem that interests us now falls within this general framework of expansion of governmental activities and the narrower framework of planning health care and training manpower for it.

Government-university relationships. The characteristics of two manpower systems--the one using manpower (companies, government, etc.) and the other training it (universities, training centers, schools, etc.)--should be taken into account in manpower planning.

The problem posed by the dual systems is that of

compatibility between the knowledge, skills, and capabilities which the training system provides to those who pass through its primary, secondary, and vocational schools and universities and the specific needs in the same areas that the user system requires.

A salient aspect of the compatibility problem is the relationship between governments and universities. Although the process we describe largely characterizes all Western European universities, the relevance it has acquired in Latin America and the Caribbean is especially notable.

Since the university reform movement began in Córdoba, Argentina, in 1918, Latin American and Caribbean universities have recovered their autonomy from government. Perhaps the most persuasive argument for justifying university autonomy is that intellectual activity within universities should be as free as possible lest the creativity at the highest level of the educational system be restricted. This principle, from which that of autonomy necessarily derives, has been vigorously defended throughout this century by Latin American universities.

In many instances, university life, curricular decisions, and the selection of faculty and students have

been completely independent and isolated from official policies with respect to the training of highly qualified personnel. This has indeed happened in many public and private Latin American and Caribbean universities, and as a result government and university policies have become estranged. On many occasions this has been a major obstacle to planning manpower training.

When governments intervene in university affairs and the principle of autonomy becomes weakened, student bodies and faculties generate strong currents of opposition to governmental policies. University communities seem naturally to generate a body of thought that neutralizes and is opposed to students' social origins and involves a significant portion of students in the general behavior of a "student class."

The essential fact is that only absolutely authoritarian regimes have managed to eliminate university autonomy and include it vertically within the governmental structure. When this does not happen, the government's manpower training policy should reckon with this "dissonance," for not to do so would be to overlook a basic factor which plays a substantial role in the training of the most qualified personnel in any society.

Governmental structure. The manpower coordination or planning process occurs and develops within the governmental context of the country. This context, which results from customs, precedents, organizations, power distribution, and the like, has been quite different in the Hemisphere's various countries.

The situation in the Latin American and Caribbean countries as a whole--there are naturally exceptions--has been different from that elsewhere.

Although an early tendency toward including plans and programs in the political decisions of Latin American and Caribbean governments can be perceived, particularly plans dealing with manpower training, the problems in the process have generally manifested themselves when such plans and programs have been implemented. Frequent changes in government policy have been an obstacle to implementing overall plans already drawn up, and administrative apparatuses have often been too feebly structured to continue the activity beyond changes in government, which naturally creates weaknesses in implementing plans.

In those countries with technically qualified government bureaucracies committed to the fulfillment of their tasks, there is greater likelihood that plans

and programs have managed to survive despite changes at the top of the political system. In saying this, we are not proclaiming the advent of a technocracy but noting that in Latin America and the Caribbean the planning concept, which has been accepted for many years, has not been based on an administrative foundation solid enough to guarantee the fulfillment of plans in view of the scarcity of available resources.

Health planning. Another major factor in the broad context is the general process of health planning. It is obvious that health manpower planning in each country depends on and springs from health planning, with which it should theoretically be integrated.

In practice, the integration between both types of planning depends on the extent of each's development.

In most of the Latin American and Caribbean countries, as noted above, there is a health planning process. Its vigor varies from one country to another, but in all the planning principle is at least fully recognized. Most of the countries formulate health plans which have at least a standard-setting role. In this situation, manpower planning naturally stems from health planning. Since manpower planning is quite incipient, integration presents no great problems.

Still, problems occur when the vigor and scope of the health planning process are limited. It may happen, for instance, that the scope of a health plan is inadequate in that it does not cover all activities in the sector and thus overlooks areas of medical care, the hospital network, or levels of more sophisticated care. These are traditional but major consumers of health personnel. It may also happen that the planning process does not involve all institutions in the sector and that planning is limited to activities in the public subsector, whose capacity to attract and hold health personnel is less. The limited duration of health plans is another technical difficulty since they are generally for short or medium terms and based on the current modalities of the agencies involved and the use of present technology. Because of this it is quite difficult to draw up a manpower development plan, which represents a long-term human and financial investment, based on immediate quantitative and qualitative needs.

For these reasons, when manpower planning takes on a certain impetus it begins growing by itself. In fact, various degrees of relationship between both processes have already been observed, from complete integration to a parallel evolution with reciprocal readjustments

in which manpower planning acts as a controller of health planning.

Chapter 2
Phases in Manpower Planning

*Analysis**

The first step in manpower planning is analysis of the manpower training and use situation. The figure in the preceding chapter shows a logical sequence of analytic activities.

In this theoretical sequence, complete analysis of the present and future situation should precede the identification of issues, the comparison of alternative activities, and the preparation of a formal plan. In this way, it would not be necessary to adopt partial or temporary measures before identifying issues accurately. In practice, the working needs of the health services or training institutions often require acting without an orderly progress through a period of preliminary studies and reflection. In addition, during the latter stages

---

*Health planners in English-speaking countries would probably consider the analysis and issue identification phases mentioned herein one. The latter phase is called "diagnosis" in Latin America.

of the process--preparation of strategies, formulation of a policy, and execution and evaluation of the plan--research needs arise and the result is that the research function is not limited to a preliminary study to identify issues but, in reality, occurs in all phases of the process. When there is a clear vision of the entire process and all those participating in it have fully entered into their respective roles, however, activities are coordinated and *ad hoc* efforts give way to a step-by-step process.

Analysis of the situation at the start of the process customarily focuses on health services. The nature of the training system will also be examined in the first analysis.

Gradually and as the process develops, analysis may go more deeply into the health and education needs of the population in order to reconcile service needs and supply with the supply of education. The manpower planning process thus approaches a more overall interpretation of the situation and can be based on more solid foundations.

Consideration of the health system in isolation may naturally be the first phase in drawing up a manpower training plan. Nevertheless, to the extent that

an effort is made to formulate a feasible plan, it will be necessary to take into account factors that originate in the society as a whole. Some of the social factors outside the health sector that should be taken into consideration are mentioned below.

Analysis of the health-care system. Analysis of the health-services system is the basic step in identifying issues accurately.

In this stage the data that should be gathered for study--demographic facts, age distributions, mortality and morbidity statistics, bed-population ratios, number of medical visits and vaccinations, incidence of malnutrition, and institution types and levels--are enumerated. Having such data is essential.

In the first place, most service indicators and data about mortality, morbidity, beds, and medical visits are national or regional averages which usually conceal differences owing to urban or rural location, socioeconomic status, the kind of care received, the type of agency rendering the services, and other factors it would be useful to detect, analyze, and correct. In the same way that average income per family does not allow defects in income distribution to be identified, average health indicators are of only limited use in

determining quantitative and qualitative requirements.

In the second place, analysis of a country's health system requires less disaggregated and generally different information such as the annual number of services per nuclear family and by type of illness, age group, and socioeconomic group, and data such as manpower location, training, functions, hours worked, and remuneration. This kind of information is only rarely collected by health services.

To analyze the health system in most of the countries in order to identify manpower issues, therefore, the statistical information gathered by the health services must be supplemented by studies, surveys, or specific checks. Until it has been determined what data are relevant and a permanent mechanism for collecting such information has been established,* the groups responsible for manpower planning in each country must carry out this analysis in innovative ways. On the basis of the experience

---

*PAHO and its member countries are now defining the type of permanent information necessary, both for planning and the correct use of health personnel and to establist collection and processing methods.

gathered, it would be more useful to analyze the various institutions, the population they serve, the type of services rendered, their resources, the distribution of their services geographically and by socioeconomic groups, and their personnel deficits and errors in personnel management. The analysis must be carried out by region or subregion to detect inequalities from one area to another.

The health needs of the population. Analysis of the health-services system, i.e., the supply and sometimes the demand for services, must be rounded out as quickly as possible by analysis of the population's health-care needs. In Latin America, where there are major distortions in supply and demand, study of theoretical needs has a very special meaning and appears to be the most satisfactory procedure.

Many errors inherently result from analysis of theoretical needs since such analysis requires value-making technical judgments. Nevertheless, it provides an unsubstitutable view of the theoretical health needs of the population which is essential in order to identify issues. Such needs are studied through a combination of theoretical investigations, detailed observation of services, population surveys, and simulation techniques.

Analysis of needs has not yet been fully explored, though the methodologic tools necessary to carry it out satisfactorily are available.

Finally, analysis of the health-services system and the population's needs reveals requirements for health personnel expressed in number, training, geographic and functional distribution, annual rate of attrition, etc. These requirements are basic factors in preparing the plan.

The manpower training system. Many aspects of the educational system require analysis. This report will limit itself to noting those that create problems in preparing manpower plans.

(a) Beyond the official educational policies (included in constitutions, laws, etc.), the way in which public and private expenditures on education are made should be examined. For example, it may be said for Latin America and the Caribbean that the basic goal of an educational system is social leveling through eradication of illiteracy, but analysis of expenditures may indicate that more money is being invested in secondary or higher education than primary education. A goal of the plan might then be to change that tendency since, for instance, vocational schools should play a key

role in training technicians.

(b) The differing prestige of the various health professions is an important factor. There is no doubt that the health professions enjoy varying prestige and medicine the highest, and that the behavior of aspirants is oriented toward medicine. As a result, a manpower development plan should include suitable mechanisms for modifying this social behavior by encouraging health professions with less prestige.

(c) Planning the sectors using and training manpower cannot be synchronous. While the user system may be planned for relatively short periods, planning the training system requires longer periods because of the longer times involved in education. This difference obliges the planner to use care in drawing up guidelines for changing the structure of employment in the health sector.

(d) Except in countries with authoritarian regimes that regulate social processes, including the educational system at all its levels, the academic autonomy of public and private universities must be considered in any analysis.

The manpower planner should formulate mechanisms for coordinating with institutions of higher education

so that the training of highly educated personnel is related to the manpower plan's forecasts. We cannot now imagine how manpower planning will be possible in Latin America and the Caribbean without the participation of universities. Even when there is optimal cooperation between health services and universities, only broad adjustments can be expected since the transmission of knowledge, skills, and attitudes can never be tailored to planners' forecasts.

Education needs. Once the training system has been examined, the expressed demand for education should be considered in formulating a manpower plan. In addition, there should be some idea of the education needs of the population.

Determining short- and medium-term demand for education is relatively easy. Using the number of pupils enrolled in primary and secondary schools, the number of graduates in coming years can be estimated. In the same way, it is possible to determine how many graduates will want to enter auxiliary, vocational, technical, or university health professions. Employment policies and whether medicine is socialized or privately practiced are factors that should be used in estimating long-term demand.

In theory, demand may be satisfied, rejected, or guided. In practice, student demand may create political pressures which are very difficult to resist, as seen in open-university admissions or diversified baccalaureate policies in various countries.

It is difficult to formulate an idea of educational needs and even more difficult to include such an idea in planning.

"Educational needs of a population" means the education to which a population aspires, based on its present level and the instrumental and symbolic value assigned to education. This perceived need usually exceeds the possibilities of the training and user systems, but since it is a matter of the population's genuine aspirations, it cannot be eliminated but rather should be studied and considered in planning.

At present it seems more important to determine the kind of education the population needs quantitatively and qualitatively so that it can participate satisfactorily in developing its health care and society in general. The less the expressed need, the greater the importance of this point, as in the case of rural or poor urban populations.

In each case it is essential that the manpower

planner identify and understand the factors in the overall society that influence the perception or nonperception of the population's educational needs.

Identifying the issues

After the situation has been analyzed, the next step is identifying the issues. The goal of identifying issues, which allows a comparison to be made between a real and an ideal situation, is to be able to detect imbalances ("problem areas" or "bottlenecks") in any area of reality.

The fundamentals which are taken into account in drawing up the normative model or ideal situation are varied. They may nevertheless be grouped in two areas, valuational and cognitive.

In the valuational area, the construction of a normative model implies the selection of items that are included in the model on the basis of judgments by the person creating it.

"Cognitive" refers to the formulation of a normative model based on knowledge of a reality. A common example is quality control of industrial products in order for a product to have optimal characteristics. Naturally, the ability to construct a normative model

will depend on the development of knowledge about that part of the reality in question. When a normative model is constructed in practice, it is often difficult to differentiate valuational from cognitive aspects since they go hand in hand. In turn, the amount of valuation involved in constructing a normative model is greater in the human than in the exact sciences.

Comparison of the real and normative models results in issue identification, which will be an evaluation of the degree to which the real model approaches or departs from the normative model. Greater quantification of the similarities or differences between both models will improve the quality of issue identification. It should be noted that identifying the issues does not necessarily imply a comparison between two synchronous models of a given reality since it may be made on the basis of successive models of the reality as well as one or various normative models, depending on the manpower planner's interests.*

At least three sets of factors should be considered

---

*Taken from "Studies of Health Personnel, A Report of a WHO Scientific Group," Geneva, World Health Organization, 1971.

in identifying issues for manpower planning.

(a) The first consists of standardized factors such as demographic data, environmental and economic information, health needs, the use of health-care services, the training, supply, and deployment of health personnel, and health manpower planning.

(b) Secondly, those who analyze information about the items comprising the identification of issues may interpret the behavior of the data they are manipulating. The identification of issues will naturally be enriched to the extent that such interpretations exceed its purely descriptive scope and include explicative hypotheses about the phenomena examined in it.

The natural result of what we have just said assumes that identification of issues will include proposals for changing the present user or training system. In the initial phase, such proposals for change will only make them easier to realize rather than be strictly prescriptive and predictive. But the projective identification of issues deals with the comparison with this future situation, for which courses of action have been proposed that tend to arrive at it on the basis of reality.

Proposals for change in the health sector and particularly in the manpower area are obviously not

generated entirely by nor should they be the monopoly of manpower planning units.

In addition, all groups and institutions involved in the planning process and the later execution of the proposals forming the plan should participate equally in identifying issues, since this will give the best chance of success. Possible community participation should be considered in identifying issues and putting the subsequent plan into effect.

Designing strategies

In this phase of the process, emphasis is placed on technical and political factors. The technical factors in the preparation of strategies have been described in previous documents.* We will make various comments here on the experience of health manpower planners in the Americas who have had to prepare and propose alternatives in strategy.

Proposals for change result in alternative courses

---

*Bureau of Health Planning and Resources Development, Health Resources Administration, Department of Health, Education, and Welfare, "Health Manpower Planning Process," Washington, GPO, 1975. DHEW Publication No. (HRA) 76-14013.

of action whose number is limited only by the creativity of the planning team. In practice, however, the options are not usually numerous. Initial discussion with interested institutions about possible alternatives enables most such options to be identified. A better idea of the number of probable alternatives will be necessary, however.

It then remains to check each alternative's immediate feasibility, i.e., the possibility of achieving what is proposed within the governing limitations (periods, costs, resources, feasibilities, regulations, etc.). It is important to note that checking the feasibility of such medium- and long-term strategies is often omitted or slighted.

Indeed, a health personnel policy may be carried out quickly and easily but its results may be disastrous at the end of a few years. It will therefore be necessary to insure the technical, social, economic, and political feasibility of each proposal. It will also be necessary to determine what effects each will have on care, demand for services, and confidence in the system, the additional burden and level of services, its impact on the expectations of health workers, the evolution of the personnel in question, what labor pressures are being

generated, budget increases in future years, etc.

This task is difficult and requires technical imagination. Hypotheses are uncertain and discussions may become subjective, and therefore it is essential to acquire more experience in this area. Recently the use of mathematical simulation techniques, though they do not provide numerical answers of immediate value, has allowed adequate and systematic discussion of medium- and long-term strategy alternatives.

The political aspect of preparing and discussing alternatives is of capital importance. We have already mentioned that proposals for change should be discussed among the interested institutions. The "preparation" of alternatives is a highly technical task intended to be carried out by a small group whose work should not be unilateral or secret. The circulation of the strategy document should not be restricted as something a ministry has prepared for "limited official use" and without consultation.

After they have been sketched, the alternatives should be openly discussed with the participants in the process. The participating institutions should agree to provide necessary statistical documentation and key experts and to support the presentation of the strategy

when decisions are being made.

Widespread participation, whether through consensus, adjustment, or conflict, is essential in a genuine process. Finally, the process is educational since it requires the participating institutions or groups to better formulate their own institutional goals and policies.

Discussion and approval of strategies

At some point in the process, approval should be given at the highest decision-making level (health or education ministry, university council, or even the national congress) when the plan requires the appropriation of funds.

At what point should the project be presented, discussed, and approved?* In premature form or immediately after the main strategy alternatives have been formulated, or when the plan has been completed and

---

*We exclude instances in which decision makers organize a planning group and so present it a ready-made identification of issues and course of action because the plan's execution has already been defined. Such situations are outside the planning framework.

documented? Decision makers should be informed and consulted periodically from the initial stages onward, and if this is done, formal approval may be given later and be final.

It is interesting to note that in Latin America and the Caribbean, the problem usually lies in arranging formal discussion and approval at decision-making levels so that there will be a firm political decision and good prospects for executing the plan.

Discussion between the health and education sectors is still more difficult to achieve, so much so that here we prefer to speak of separate and successive approvals in each sector.

The weakness of this official agreement on plans, which is not unique to manpower planning, is one of the greatest difficulties encountered to date. In the United States and Canada, congressional or parliamentary approval or rejection of budget appropriations formally sanctions the plan's orientation.

Formulating a health manpower policy

"Policy" means establishing the activities and general course to be pursued in relation to the main problems in a given area. In this sense, "policy" is

only indirectly related to partisan ideology or posture.

Consensus is gradually being reached about what a health manpower policy and its goals and content are or should be.* Nevertheless, there are still two ways of formulating a manpower policy.

In some cases a government, ministry, or institution states its health manpower policy, which is an initial orientation. In other cases the formulating organization, after analysis, issue identification, and discussion of alternatives, draws up a finished and documented synthesis. In reality the two methods of policy formulation are not contradictory since it is evident that there may and should be an initial and temporary policy statement which will later be followed by the formulation of a more developed policy.

Decision makers should understand that the statement of a policy does not replace the formulation of a plan nor still more the planning process. Experience shows that once a policy has been enunciated, pressure to limit operational measures is quite strong and may

---

*See J. V. Pillet and J. Andrade, "Desarrollo de Recursos Humanos para la Salud; Documento de Trabajo presentado en la XX Reunión de Ministros de Salud de Centro América y Panamá," Washington, PAHO, 1975.

even paralyze the planning process.

The difference between the manpower planning process, which is participatory, and the statement of policy, which is basically an exclusive act by the government or its components, should also be clear. Early declaration of a policy without previous discussion may polarize the other institutions and truncate the process.

Formulating the manpower plan

Dynamic and effective manpower planning can exist but not result in a formal plan. It is also possible for a plan to be formulated without real planning. It is nevertheless assumed that a plan will be formulated during the normal course of planning. Such formulation is a set of proposals with quantified and dated goals and is the true touchstone of the process as to the capacity of the participating institutions to determine a course of coordinated action.

If the previous phases have been fully accomplished, formulating the plan is a task that requires methodical work to shape the various proposals and also proper organization to insure that the plan's various institutional components work together and are able to re-

solve the conflicts that arise from establishing deadlines, allotting resources, etc. Since up to now there have been no concrete examples of planning or theoretical studies on planning format and content, it is useful to note the consensus in this regard.

A manpower plan should deal with the short, medium, and long terms. For the long term (10 to 20 years), the plan should propose general goals, provide an overall orientation, and describe the situation desired when the long term ends. It should also delineate the goals to be achieved in each of the medium-term plans and, within them, the short-term plans.

For the medium term (two to five years), the plan should fix intermediate goals, give clear guidance, identify the structural, institutional, and operational changes which will be necessary to achieve both medium- and long-term goals, specify outside times for making crucial decisions, and outline the goals and actions in the two years immediately following the short term.

For the short term (one to three years), the plan should establish specific quantified and dated goals with intermediate targets, and it should assign responsibilities for execution, allot resources, and specify incentives, facilities, or other governmental support.

The short-term plan is thus inseparable from programming and budgeting.

In addition, a manpower plan should cover both the use and training of personnel. Although no one now doubts that both are inseparable and that if isolated they lack meaning, and that if both aspects are considered together it is easier to prepare the training plan, it is possible to predict that the use aspects will be neglected for several years to come. This stems in part from technical problems and in part from budget limitations which prevent health ministries from having a leading role in the hiring, retention, management, and development of health personnel. A national or regional manpower plan should be an overall plan. It should simultaneously deal with all categories of personnel, all health-care activities, and all institutions in the sector. More than anything else, a plan is a tool for coordinating and interrelating many components.

Despite what has just been said about the need to prepare general plans for varying periods (short, medium, and long terms), partial short-term plans are now being prepared for the agencies controlled by health ministries. Health policies are not concrete enough, the sector's various organizations are not sufficiently

integrated, and no mechanisms exist for regulating the private sector, so that the formulation of a real plan could be attempted under such circumstances. Processes today are planless or in the preplanning stage.

Preparations for executing the plan

Resources for carrying out the plan must be mobilized after it has been formulated, whatever its scope and coverage.

Resource mobilization is defined as the set of legal, physical, budgetary, and other preparations for executing the plan. Formulation and resource mobilization are different stages of the process, but they should go together to emphasize their importance and highlight the defects in the latter phase.*

Between the time a plan is approved and the start of its execution, there is usually a period of preparation during which necessary infrastructures are created, funds are obtained, necessary equipment is procured, and needed personnel are trained. In Latin America and the Caribbean, the relatively low priority given the

---

*See Bureau of Health Planning and Resources Development, *op. cit.*

health sector always results in inadequate resource mobilization. This is not due to defects in administrative capacity, as is commonly believed, but the relative powerlessness of the responsible agencies and the scarcity of resources. Examination of investments in other sectors shows that the health sector, and particularly the public subsector, receive little money.

Executing the plan

Planning leads to execution which, strictly speaking, is not part of planning. Nevertheless, the institutional or multi-institutional group that guided the successive phases of the process also has a role in the execution phase in at least two areas: (a) arranging allocation of resources in time, facilitating operations, intervening to resolve conflicts, obtaining necessary regulations, and overcoming bureaucratic obstacles, and (b) invigorating execution, controlling operations (positive action, or occasionally restrictive action), keeping in mind the goals to be accomplished and the deadlines to be met, strengthening the weakest parts of the activity, and accelerating the most behindhand activities.

Evaluation

This, the last phase in the logical sequence, is an examination of two factors--the results of the plan and the planning process.

By results of the plan or of the course of action taken (and we have already noted that in Latin America and the Caribbean today there are no formal plans), we mean the quantitative and qualitative consequences for health personnel and services and for the population and its health. Generally speaking, the effects on personnel and the functioning of the health services are observable and measurable. To attempt to go further and measure the impact on the population's health would mean including the most varied factors in the evaluation in addition to the manpower changes that have taken place.

Quite different factors are evaluated in analyzing the results of the process.

In the first place, we should ask how the administration of the process was initiated, how the participation of other institutions was induced, what goals were achieved easily, where problems arose and why, what documents were prepared, how, and when, what lessons the process taught, and what knowledge was produced.

In the second place, the participation of the institutions in the sector should be evaluated. Then we should ask if they were technically prepared, to what extent they accepted the planning principle, and how far the process caused the participating institutions, professional associations, and the population itself to advance.

As in any evaluation, conclusions provide feedback for the various phases of the process. On this point there is complete theoretical agreement, but we should ask to what extent the findings of the evaluation are really used in revising decisions.

It is hoped that in describing both the environment and phases of the process, the difference between the process (which is a participative effort by many institutions) and the group of technical experts or officials who carry it out will become clear. In fact, a manpower planning process such as has been described cannot succeed unless a committee, commission, or working group acts as a technical secretariat in order to insure the continuity of operations, approve necessary documentation, and carry out the studies and checks that arise in each phase.

Assigning complete responsibility for the process

to such a technical group would be a mistake. We believe that the amount of participation the process achieves and maintains is a sign of its success and a guarantee of its genuineness. Centralizing the process under an authoritarian unit might be useful during the initial phases, but it is essential to open it to widespread participation quickly.

The amount of authority the technical group should have is a matter of judgment in each instance, but it should have neither so much power that it monopolizes the process nor so little that the development of the process is hindered.

Planning unit role and power alternatives actually conceal the option between centralism and decentralization. Experience up to now seems to indicate that a process cannot take root without an initiative or support from the central level. Perhaps it is necessary to view such leadership as an initial step and expect that decentralization--both geographically and institutionally as well as in the greater participation of teaching institutions, health personnel themselves, and the population--will occur later.

In the experiences related below, the central group has been the manpower unit in the health ministry. It

may also happen that a process develops in which there is no formal manpower planning unit, and/or other situations the existence of such a unit may not guarantee the process's growth.

The experiences of Colombia, Ecuador, Honduras, and the United States described in the following chapters show four possible planning modalities.

Chapter 3
Colombia

The country and its population

Colombia, 1,138,338 km^2 in size, had a population of 24,639,830 people in 1976, of whom 59.7 percent lived in urban areas. It is anticipated that the country's population in 1980 will be 26,752,800, of whom 70 percent will live in cities or towns.

The population is basically young, but since 1964 there has been a decrease in the proportion of those less than 15 years old (from 46.6 to 44.2 percent) and an increase in the proportion older than 45 years (from 13.1 to 13.6 percent). In mid-1977, life expectancy at birth was 61 years and the proportion of the population older than 64 years was 3 percent.

The birth rate in 1976 was 33 per thousand population and gross mortality was approximately 8.5 per thousand. In addition, the rate of natural population increase declined from 3.2 percent in the period 1951-64 to 2.4 in the period 1964-76.

The country's per-capita gross domestic product in 1974 was $461.2 (in 1973 dollars), and in 1974 the proportion of illiterates in the population was 77.6 percent.

Health conditions

Diarrheas and communicable diseases such as influenza, tuberculosis, and malaria are statistically among the leading causes of morbidity in the country.

The leading causes of death are diarrheal diseases, pneumonia, heart disease, and various deficiency conditions. In 1973, 24 percent of the country's deaths were in infants less than one year old and 43 percent were in children less than five years old. Infant mortality decreased from 70.5 per thousand live births in 1970 to 60 per thousand in 1976. Malnutrition is the basic or an associated cause of 41 percent of deaths in children less than five years old, and in this age group a 1971 study showed that it was a contributing cause in 65 to 94 percent of deaths from measles, 51 to 64 percent of deaths from diarrheal diseases, 47 to 74 percent of deaths from other infectious and parasitic diseases, and 29 to 40 percent of deaths from respiratory diseases. Maternal mortality is still unacceptably high in most parts of the country.

With respect to sanitation, 29 percent of the rural population has access to potable water and 13.3 percent has sewerage, while 73 percent of urban area residents have potable water and sewerage. In the realm of food

hygiene, close to 95 percent of the country's present slaughterhouses have defective sanitation and 75 percent of the milk consumed has not been pasteurized.

Health services

Public health services are organized nationally, regionally, and locally. At the national level the Ministry of Public Health is responsible for general program planning, coordination, and evaluation and for planning and administering the training of personnel in the public health service. The ministry was reorganized in 1963, when its functions were established by decree. Under the reorganization, the minister is assisted by a secretary general who is responsible for planning, policy determination, budget preparation, and liaison with the Congress and other branches of the government.

Several other organizations are concerned with public health at the national level. Among them are the National Public Health Council, which is composed of specialists who advise the minister on concepts and programs, and the National Council of Medical and Auxiliary Medical Professions, which is active in the area of professional ethics and discipline.

At the regional level the country is divided into

politico-administrative divisions created to decentralize public health services. These regional divisions act for the Ministry of Public Health in administering programs within their areas of responsibility. At the local level are hospitals, health centers, subsidiary health stations, and other facilities.

Personnel health services provided by the ministry and its subordinate organizations are intended for those who are unable or unwilling to afford private care and are not eligible for care under the medical programs of the Colombian Social Security Institute, the armed forces, or the health funds for the government's civilian employees. The size of this segment of the population is seen in the fact that the ministry and its dependencies provide 75 percent of the nation's health care (though only 39 percent of the population receives professional health care from the ministry), while private practitioners provide 15 percent and other agencies provide the remaining 10 percent.

In 1975-76 the public health budget, including foreign credits, was 8 billion pesos. It is significant that this represented 10 percent of the national budget and that three-quarters of the government's health expenditures were on personal health care.

Generally speaking, the health sector is characterized by: (a) unbalanced institutional development, with a multiplicity of goals and much competition; (b) a diversity of organizational models, which had made information flow and coordination within and between sectors difficult, and a lack of adequate mechanisms for integrating the sector; (c) dilution of effort and inadequate distribution and underuse of resources due to defective coordination, systems, and procedures; (d) unsatisfactory resolution of the population's health needs and demands through the supply of health services, and (e) failure to keep pace with the growth of the population and its needs and demands.

Human and physical health-care resources

Human resources. Table 1 shows the country's health manpower in 1976 and Table 2 shows the numbers of health workers produced in the same year. In general, there are more professional workers than intermediary or auxiliary personnel, and this enormously limits the multiplicative effect of the professionals. In addition, health workers--and especially professionals--are inadequately distributed geographically since 75 percent of physicians, 80 percent of dentists, and 86 percent

Table 1

Colombian health manpower, 1976

Category	Number	Rate per 10,000 population[1]	Rate per hospital[2]
Professional			
Physicians	12,269	4.9	-
Nurses	3,600	1.4	-
Dentists	3,200	1.3	-
Pharmacists	1,600	0.6	-
Sanitary engineers	350	0.1	-
Veterinarians	2,300	0.9	-
Laboratory clinicians	3,700	-	5.0
Nutritionists	600	-	0.8
Intermediate level			
Physiotherapists	1,000	-	1.4
Statisticians	267	-	1.4
Radiology technicians	360	-	0.5
Surgical instrument technicians	830	-	1.1
Pharmacy technicians	60	-	0.08
Administrative assistants	320	-	0.4
Cytotechnologists	172	-	0.2
Environmental protection agents	1,900	0.8	-
Sanitation supervisors	300	0.1	-
Auxiliary			
Rural health workers	4,500	1.8	-
Nursing aides	12,500	5.0	-
Dental assistants	450	0.2	-
Assistant statisticians	300	-	0.4
Pharmacy assistants	74	-	0.1
Supply assistants	52	-	0.06
Library assistants	42	-	0.05
Social work assistants	73	-	0.1
Bookkeeping aides	87	-	0.1

[1] Population in 1976: 24,639,834

[2] 735 hospital facilities

Table 2

Production of health manpower in Colombia, 1976

Category	Number of graduates
Physicians	900
Nurses	275
Dentists	130
Pharmacists	80
Sanitary engineers	21
Veterinarians	180
Laboratory clinicians	310
Nutritionists	91
Physiotherapists	90
Statisticians	56
Radiology technicians	17
Surgical instrument technicians	-
Pharmacy technicians	-
Administrative assistants	45
Cytotechnologists	8
Environmental protection agents	250
Sanitation supervisors	30
Rural health workers	
Nursing aides	1,700
Dental assistants	58
Assistant statisticians	138
Pharmacy assistants	31
Supply assistants	30
Library assistants	18
Social work assistants	31
Bookkeeping aides	36

of nurses practice in departmental capitals.

Physical resources. Colombia has somewhat more than 800 inpatient facilities with 46,600 beds, or 1.9 beds per thousand population. The bed use rate is 68 percent, though this varies from 15 percent in local clinics to 85 percent in university hospitals.

National health policy

The basic elements in the national health policy may be summarized as follows:

1. An increase in health-care coverage, giving priority to rural and poor urban populations and within such groups to mothers and children.

2. Improvement in the present status and use of health institutions through regionalization of services at three levels--local, regional, and university.

3. Strengthening infrastructural programs to improve the administration of services.

4. Integrated development of the manpower required for the national health service.

5. Increasing and strengthening environmental protection programs: water supply, waste disposal, environmental pollution, food and drug quality control, industrial hygiene and safety, occupational health, and

zoonosis control systems.

6. Development of all institutions in the sector through the national health system and the unified sectorial plan.

7. Coordination of activities with other social and economic sectors to facilitate the country's balanced development through the integrated rural development, food and nutrition, border areas, and poor urban areas programs.

Health manpower policy

The basic goal of the country's health manpower policy is integrated development of the manpower required for the national health system. Specifically, the policy provides for integrated health manpower planning to achieve a health team and occupation pyramid which will allow health personnel to move vertically and guarantee their retention for as much of their productive life as possible.

Among the policy's precise objectives are:

1. Strengthening intra- and intersectorial coordination to adapt and better use health manpower.

2. Improved intervention by the Ministry of Public Health in the development of manpower training programs

in order to adjust the number and quality of personnel to the sector's needs.

3. Delegation or reassignment of functions to increase coverage by the health services.

4. Strengthening of programs to train intermediate and auxiliary personnel in order to achieve satisfactory occupational structuring in the sector.

5. Promotion of adequate manpower distribution to insure optimal use of health workers and functioning of existing medical care services.

The health manpower unit

History. The 1965 study of health and medical education in Colombia created the first opportunity for contact between an important part of the education sector--medical schools--and the health service sector. It stimulated a search for joint solutions to the problems of health and manpower training. The study was later extended to include an examination of dental manpower, an experimental analysis of health services and medical-care institutions, and a probing evaluation of the nursing situation.

As a result of these inquiries, it became apparent that a unit was needed within the Ministry of Public

Health to oversee and coordinate the training of personnel required for the country's developing health programs. The 1968 administrative reform of the ministry created the Office of Health Manpower Administration which, despite its name, was in essence responsible only for training over the next several years.

During the early 1970s the harmful narrowness of the office's focus became clear, as did the need for a unit that would also deal with manpower intelligence, requirements, use, and research. Parallel with the office's training activities, informal mechanisms were created in the first half of the 1970s for intra- and intersectorial coordination.

In 1975, Decree No. 121 reorganized the Ministry of Public Health, changed the Office of Health Manpower Administration into the Directorate of Manpower, established its structure and functions, and gave it legal status as part of the ministry's general secretariat.

Organization. The directorate consists of the office of the director, divisions of programming, utilization, and training, a directing committee, and a national advisory council. The training division has four sections, three of which deal with training (personnel for medical-care services, environmental sani-

tation, and infrastructural services), while the fourth is a documentation center. The utilization division has two sections, one dealing with manpower use studies and the other with social welfare.

Functions. The director and his staff propose policies dealing with manpower training and use, prepare the ministry's portion of the national manpower plan, participate in formulating the national health plan, establish mechanisms for taking part in intra- and intersectorial coordination of manpower policy formulation, and supervise the work of the directorate's divisions.

The programming division forecasts manpower requirements for the country's developing health programs and designs and tests planning models. The utilization division establishes standards and mechanisms for regulating the distribution and location of health workers based on demand for their services, examines and suggests policies and standards for enhancing the recruitment and optimal use of manpower, and carries out or commissions studies of health manpower use. The training division establishes mechanisms necessary for training the manpower needed by the national health system and carries on activities to upgrade health

workers professionally.

The directing committee serves as a mechanism for internal coordination and information flow.

The national advisory council, which is composed of representatives of the ministry's Office of Planning, the Ministry of Education, National Planning Department, Colombian Institute for the Development of Higher Education, Colombian Association of Nursing Schools, and Colombian Social Security Institute, suggests policies and standards for the training and use of manpower, promotes the establishment of mechanisms for coordination between the sectors and agencies represented on the council, and participates in harmonizing regional training plans in the national health manpower training plan. In addition, it employs temporary working groups to study specific problems. Such working groups are composed of representatives of the teaching and service sectors and professional associations.

Below the national council are regional training councils which are composed of representatives of regional health services, the Colombian Social Security Institute, and medical and other health sciences schools. These councils evaluate the health manpower needs in their regions, draw up annual training plans,

and coordinate the resources and activities of the institutions they represent.

The unit's programs

To carry out its various policies, goals, and functions, the Directorate of Manpower has several programs, among which are:

Design and implementation of a health manpower registry and intelligence system. The basic characteristics of health personnel and the institutions training them have been defined to facilitate the planning and evaluation of activities. This system provides continuous and thus updated information and covers the ministry's components, social security system, private sector, and other institutions that conduct training programs for health workers. Processing the information collected is the responsibility of the national information subsystem, which sends computer compilations to the directorate for analysis and use in planning.

Occupational analysis. An analysis of all types and categories of health personnel working therein was carried out in a pilot area. Its findings should help in identifying disparities and imbalances between academic and programmatic (or normative) models of man-

power use and so lead to changes that will bring the two models closer together. The methodology developed and tested will be refined for later use in other parts of the country.

Curriculum revision. The professional nursing, nursing auxiliary, middle-level statistician, dental auxiliary, rural health worker, and environmental health worker training programs have been revised. The revision was based on a methodology or process which progresses through analysis of a problem; knowledge of the government's political, administrative, and programmatic response to the problem; definition of activities and tasks, their level of complexity, and the kind of personnel needed to carry them out; definition of educational goals, and definition of minimal curricular content. This minimum is added to that related to the goals or philosophy of the teaching institution responsible for a specific training program.

Continuing education programs. These programs cover almost all health workers. They are formulated jointly by the regional health services and universities, and are submitted to and approved by the regional training and national advisory councils. They are supervised or taught by personnel from the service and edu-

cational sectors and consist of in-service training, seminars, short courses, and reading materials and recorded lectures for off-duty study.

Obligatory social service program. To promote the settlement of health workers and especially professionals in shortage areas, physicians, dentists, nurses, clinical laboratory technicians, and physiotherapists are legally required to spend one postgraduate year in social service work in such areas to receive permission to practice their professions.

The future

The planning process developed to date will advance to the extent that the national health system's organization improves and is invigorated. Research support will be required, and new technologies should be incorporated in the process as they reach desired maturity.

The planning activities now being conducted should be supplemented by short-term economic analyses of manpower training, administration, and use. In the medium term it might be possible to carry out studies of personnel productivity and the use of informal health workers.

As to intersectorial relationships, mechanisms for

participating and coordinating with the educational sector will have to be strengthened, particularly in the training of intermediate-level and auxiliary health workers.

Chapter 4
Ecuador

The country and its population

Ecuador, whose territory covers 270,760 km^2, had a population in 1976 of 7,306,000 people, 41 percent of whom lived in urban areas. It is anticipated that the country's population in 1980 will be 8,354,000.

In mid-1977 the proportion of the population under 15 years was 45 percent, while that over 64 years was 4 percent. Life expectancy at birth was 61.3 years in 1976.

The birth rate in 1975 was 31.3 per thousand population, while gross mortality was 7.8 per thousand. In addition, the rate of natural population increase was 3.2 percent.

The country's per-capita gross domestic product in 1975 was $350 (in 1973 dollars), and in 1976 the proportion of illiterates in the population was 23.7 percent.

Health conditions

Communicable and parasitic diseases accounted for almost half (47.3 percent) of Ecuador's general morbidity in 1976, according to Ministry of Public Health statis-

tics. Malnutrition is widespread, 9.6 percent of children aged less than five years showing signs of second-degree and 1.3 percent showing signs of third-degree malnutrition. Iodine deficiency accounts for approximately one-fifth of the country's endemic goiter.

Like malnutrition, inadequate environmental sanitation is the cause of or aggravates much ill health. Diseases of the digestive tract such as gastritis and enteritis are common, to a considerable extent because 82 percent of the urban population and 13 percent of the rural population have potable water, while only 63 percent of the urban population and 11 percent of the rural population have sewerage.

Forty-two percent of all deaths occur among children less than five years old and 26 percent occur among infants less than one year old, according to 1975 health ministry statistics. Studies conducted at the beginning of the decade showed that about one-third of all infant deaths occurred in the first month of life, at least in part because only 34 percent of births occurred in institutions. Most births took place without assistance or with the aid of untrained midwives.

The reported causes of death differ sharply between urban and rural areas. In 1970, nearly three-quarters

of deaths resulting from cardiovascular disease and almost two-thirds of those from cancer occurred in cities and towns. In the countryside, in contrast, respiratory ailments, anemias, parasitic diseases, whooping cough, and measles caused three-quarters or more of the overall mortality. The higher reported rate of urban mortality from degenerative diseases suggested failure to diagnose and report many rural deaths from those causes.

Health services

Ecuador's first national public health program was established in 1928, with headquarters in Guayaquil, the main coastal city, rather than Quito, the capital, because of the severity of the health problems then existing in the port and the coastal region in general. The program functioned nominally under what was then the Ministry of Social Welfare but was actually decentralized among a variety of agencies, the most important of which were social assistance boards (*juntas de asistencia social*) which operated autonomously in each province with their own budgets.

A separate Ministry of Public Health was created in 1967, but the provincial boards and other decentral-

ized agencies continued to carry on most public health work until early 1972. A new government then decreed the transfer of the National Directorate of Health from Guayaquil to Quito and the dissolution of the social assistance boards, whose functions were to come directly under the health ministry.

Under the Ministry of Public Health, the revised program was to be administered locally in four regions with headquarters in Quito, Guayaquil, Cuenca, and Portoviejo. A medical program for participants in the social security system was to continue to operate independently, with its own staff of health personnel, major hospitals in Quito and Guayaquil, and dispensaries in the larger provincial towns.

More recently the ministry has undertaken to expand its activities in integrated and regionalized form. The regionalized health services system is developing as a pyramid of gradually increasing complexity whose base is the scattered rural population and whose summit is the most advanced cities. Through referrals, the system seeks to guarantee access to even the most sophisticated care by all citizens, wherever they live.

In 1977, the proportions of the central government budget allocated to health and education were 9.4 and

24.0 percent, respectively.

Human and physical health-care resources

Human resources. In 1976, according to Ministry of Public Health data, Ecuador's health manpower ratios per 10,000 population were 5.8 physicians, 2.1 dentists, 0.7 fully trained midwives, 1.7 nurses, 0.6 other professionals, 8.0 nursing auxiliaries, and 1.7 technical auxiliaries.

Most physicians practice privately in the large cities. A 1970 study estimated that around three-fifths of the total practiced in Quito and Guayaquil, where less than one-quarter of the population lived, and in 1969 an Ecuadorian newspaper estimated that medical care for the entire rural population was provided by some 3 percent of the country's physicians. Nursing does not carry with it the social prestige accorded to medicine and dentistry, which is one of the reasons why physicians outnumber nurses by a proportion of about four to one; most of the country's graduate nurses practice in large urban hospitals.

The University of Ecuador, which has several branches, has traditionally trained the country's more advanced health workers, and to do this it has received

financial assistance from the government and teaching assistance from the public health services. Coordination between the university and public health services is inadequate, however, since the university does not program the number of students to be trained or kinds of training to be given in accordance with national health needs. Instead, these parameters are established by the demands of students searching for economic and social status. In addition, "national health needs" are difficult to translate into "manpower needs," and it is trained personnel--with their established behavioral and thought patterns--who influence the ministry's courses or action, including the creation of new health-care disciplines and methods.

The university's medical curriculum is oriented toward private practice and slights public health, but it does try to meet the need for health care of medium and high complexity. The university also gives postgraduate training in internal medicine, general surgery, pediatrics, obstetrics-gynecology, cardiology, anesthesiology, rehabilitation medicine, traumatology, and orthopedics, but no solution has yet been found to the problem of meeting the growing need for other specialists in the country's increasingly complex

health-care services. At present, training in medical specialties other than those just mentioned takes place outside the country.

Three health occupations--nursing, advanced midwifery, and medical technology--warrant special comment with respect to training.

Since 1972 the Ministry of Public Health has been giving increased attention to nurse training and in-service courses for nurses in such fields as epidemiology, nutrition, and medical administration, and recently it has been promoting and financing the creation of new university nursing schools in various parts of the country. There has been no significant increase in student demand for nurse training, however.

The university continues to train professional midwives, but this discipline is slowly being squeezed from above and below because medical students receive adequate basic training in obstetrics and postgraduate training in the field is available, and because most rural communities have traditionally relied on their own untrained or little-trained midwives for normal deliveries. Medical technology, a recently created discipline, is now taught in the university and has established a toehold in the country's health-care

services, but it has not yet managed to win the recognition it deserves.

The development of professional training has resulted in the increasing use of students of medicine, nursing, professional midwifery, and medical technology in public health facilities, and today such students are rendering vital service throughout the country.

The ministry's policy of widening health-care coverage is a challenge to the country's capacity to train nonprofessional clinical personnel. There are now several university training centers for nursing auxiliaries and a few courses for technical auxiliaries are being developed. Early in the decade a still more basic category of health worker, the "health promoter" (*promotora de salud*), was established, and it is anticipated that most of Ecuador's growing corps of health promoters will practice in or near the rural communities from which they came.

There is no permanent training system for nonclinical workers in indirect and support services. In most instances, various ministerial departments give on-the-job training to such personnel.

In contrast to other countries, government health agencies in Ecuador do not have significant training

functions. Within the university, the training of professional personnel of adequate quality and of nonprofessional health workers in adequate quantity demands immediate restructuring of its teaching procedures and policies. The training of administrative and other support workers who now receive little or no training may require the ministry to seek solutions outside traditional training sectors.

Physical resources. In 1974, according to Ministry of Public Health statistics, the hospital bed-population ratio was 2.1 per thousand inhabitants, and most beds were in urban areas. Most hospitals are operated by one or another government agency, and the overwhelming preponderance of hospital beds are public.

A large majority of the hospitals in operation during the late 1960s had been constructed during the 19th century, and few had been modernized or reequipped in 20 years. A project beginning in 1970 called for renovation of facilities for 3,000 beds, however, and in 1972 the ministry announced that 24 small rural hospitals were under construction in the coastal and mountainous regions with private financial and technical assistance.

In general, health-care facilities of some sort--

including mobile medical and dental units--are much more widely distributed than are health-care practitioners.

National health policy

In Ecuador, the national policy of integrated development requires a joint effort by all sectors to identify and solve problems. Health cannot fall outside this policy, and thus on many occasions a specific situation in the health sector may result from problems whose solution does not pertain to health care itself but rather requires a restructuring of strategies in other sectors.

One factor of great concern to health-care planners is the changing nature of the population: though the country is still largely agricultural, the proportion of the population living in the countryside is declining steadily. This decline has many causes and those that concern the health sector are probably not the determining factors, but the health infrastructure described above and especially the deficit of medical care in rural areas contribute to the continuing migration to cities. This trend results in a twofold problem, because in addition to trying to remedy the continuing care deficit in rural areas, the health sector

is having to contend with new and unexpected needs in urban areas due to the rapid formation of shantytown belts around cities.

The national health policy is thus aimed at several goals: building a well-staffed and qualified public health service which is regionalized and integrated to provide adequate care throughout the country, dealing with the country's most prevalent health problems such as communicable disease, malnutrition, lack of environmental sanitation, and inadequate public understanding of hygiene, and creating compatibility between health manpower and demand.

Health manpower policy

The purpose of the national health manpower policy is to provide personnel to carry out the national health plan. Its goals are to: (1) keep fully abreast of the sector's manpower quantitatively and qualitatively, systematically and continuously; (2) determine the demand for manpower now and five years hence in order to reconcile present and future demand; (3) improve manpower distribution so that the entire country will have adequately trained personnel and the regionalized health-care structure will thus be able to provide the

highest quality of care; (4) increase the use and productivity of health personnel; (5) coordinate activities with all organizations using and training health workers nationally and internationally; (6) attend to the financial and social well-being of health workers and their continual self-improvement through social, educational, and financial incentives; (7) establish manpower recruitment standards that insure correct and useful selection based on the sector's requirements; (8) give special emphasis to manpower research in order that health workers become the main instrument for reforming planning criteria; (9) evaluate manpower performance at all levels in order to make necessary changes, and (10) give all health services a teaching function.

The health manpower unit

History. The Department of Manpower has grown out of the 1972 reform of Ecuador's health sector in which the Ministry of Public Health assumed full control of public health services. During the following two years the ministry strove to integrate, regionalize, and expand the country's health services, and in so doing won a significant increase in its budget and developed

a need for considerably more health workers of all kinds, which the manpower training sector in turn began producing. All these developments made it clear that a manpower unit was needed within the ministry to coordinate and manage the many personnel matters with which the ministry was increasingly dealing, and so, in 1975, a Department of Manpower was created within the ministry's Division of Planning.

Despite the advances it has made since its creation, the department still has certain problems to overcome. Since it does not have a clearcut training function requiring a large budget, its present budget is as yet inadequate (it was 8 million sucres in 1977). The department also has a personnel deficit, both quantitatively and qualitatively. Most of its officials do not have formal training in public health and depend on in-service training, which is undoubtedly beneficial to them but hinders the department's work. In addition, the department's staff is not yet varied enough in disciplines to deal with all manpower areas.

Organization. The place of the Department of Manpower in the ministry's organizational structure is shown in Figure 1.

Headed by a full-time chief who is a physician, the

department has three sections--information and research, standard-setting and coordination, and planning and development. At the moment the activities of the information and research section, which has a chief and an economist, both full-time, appear to be more clearly defined than those of the other two sections. With respect to the standard-setting and coordination section, the department has learned that those functions cannot be restricted to a single unit but must be used to improve the department's entire operation, including the work of the other two sections. The planning and development section, which has a physician, a nurse, and a technician, all full-time, had the least defined functions of any of the sections when the department was created, and this may have allowed it to strengthen its work most.

The department maintains continuous contact with the Division of Statistics in the ministry's Directorate of Technical Services and the Division of Personnel in the Directorate of Administration and Finance for information purposes. In training matters it relates within the ministerial structure to divisions or departments requiring training. Outside the ministry it maintains liaison with training organizations, and in the international field with the Pan American Health Organization.

Functions. The department's functions fall within the framework of a "methodology" of manpower planning within general health-care planning. The department thus has four main functions, information collection and processing, research, programming, and evaluation.

In carrying out its information collection and processing function, the department has determined that planning on the basis of census data is inherently faulty. There must be a permanent and complete information-gathering system to give the planning effort an accurate portrayal of reality. Because of this, the department is preparing a national information system covering both present and potential manpower in the health sector. Provincial health directors have been made responsible for initial information collection and the later and continuous updating of pertinent health data.

There will also be coordination with other, non-ministerial organizations in the health field to broaden and homogenize data collection. To do this, working meetings have been held with those sectors and some consensus about desired information and procedures has been reached. Information-gathering efforts in the public and private spheres have not yet been completely in-

tegrated, however.

Manpower research follows information collection. To fulfill the ultimate goals of adequately recruiting, diversifying, and distributing the workers required by the ministry's health-care services, such research should examine the real factors that influence the general socioeconomic context and make occupational projections. The department is thus trying to fashion a scientific methodology and research techniques; satisfactory human, physical, and financial strategies and resources; and a socioeconomic reference framework. Investigations important to the growth of manpower planning which are now under consideration or being carried out are in the areas of manpower supply and demand and their determinants, manpower training, and health-worker productivity.

It is considered both unsuitable and difficult for the department to have concrete programming functions at the moment since it is still building up its basic information-gathering, research, and evaluation capabilities. In addition, the country's administrative structure requires that the department "do things" to help deal with immediately pressing problems confronting the bureaucracy and that it act within defined working

lines to support the administrative structure. Nevertheless, the department has been developing its program management capacity during the past two years, and in the future it is likely to be most active in the areas of standard-setting, coordination, and development.

Standard-setting implies the definition of manpower categories and training needs, assignment of activities and responsibilities, determination of desirable productivity, and, when possible, establishment of salary scales in coordination with the Division of Personnel.

In the realm of coordination, many tasks important to planning are carried out in various places outside the department. It seems easy but in practice is rather difficult to select, systematize, and coherently integrate the work carried out in many sectors. Working with other sectors requires an understanding of different factors and recognition of many circumstances which often influence health care and constantly modify health-care strategies. Only through coordination can events outside the health sphere be interpreted and the product of the social dynamic be assimilated for the benefit of health-care activities.

The department exercises intraministerial coordination with all the ministry's branches to fuse manpower

planning with decision-making, administration, and operations. At the same time, it coordinates extra-ministerially with training organizations, health-sector institutions, professional associations, and other ministries.

Through such activities it readjusts plans in accordance with requirements, promotes joint or complementary health activities to cover more geographic areas and causes of ill health, standardizes the entry into and use of professional manpower in the health services, and keeps abreast of and analyzes the programs of other development sectors in terms of health manpower resources.

The department also undertakes international coordination to determine where Ecuadorian students can be sent for training abroad in order for the country to meet its specific domestic needs. It also cooperates with the World Health Organization and Pan American Health Organization in coordinating and defining matters of mutual interest in developing health manpower within the Pan American context.

In the area of development, the department has so far carried out tasks within its own sphere or at the request of agencies working in other development areas.

Among the specific development activities it has undertaken are (1) establishment of training priorities, which involves determining need priorities in order to provide scholarships inside and outside the country; (2) examination and proposal of budget allotments for academic activities of benefit to manpower training and subsidy of educational organizations; (3) creation of training courses to cover deficit areas; (4) determination of priorities and design of training programs and structures for the continuing education of the ministry's personnel, and (5) design and application of systems to compute manpower requirements for agencies using health manpower.

The department has also begun to develop program evaluation techniques since it believes that such evaluation is the only scientifically accurate way to measure the adequacy and performance of the ministry's manpower activities Evaluation should provide positive feedback in that analysis of findings about manpower programs easily leads to necessary changes in training or coverage of deficit areas, and it should allow analysis of other areas which do not compete directly for manpower but are related to health care and may influence the productivity of health workers.

The unit's programs

Among the present and proposed tasks of the Department of Manpower, some are to be accomplished in specific periods and others are to be continuous. All are important, however, in that once the initial tasks are completed they will provide valuable starting points for future efforts.

Manpower information system. This effort, begun in September 1976, is aimed at determining the country's real present health manpower supply. It seeks to maintain an updated source of information, improve the ministry's registration and statistics systems, and continuously evaluate health-worker use and performance on the basis of the sector's needs. The department has organized and coordinated the effort, though national and provincial personnel and statistics offices carry out the actual work. To date provincial personnel have been trained in data collection and raw information has been gathered and transmitted to Quito for compilation and analysis. While a report of findings was being prepared at the ministry's headquarters, provincial personnel continued to update initially collected data through questionnaires.

*Continuing education.** In addition to its usual meaning, the department believes that continuing education has a broader social purpose--that of achieving "social justice" for the various socioeconomic groups composing health teams as well as the population itself. Continuing education should relate health professions training to the true health needs of the community, and it should promote effective communication between members of the health services through a correct understanding of each member's sociomedical role.

Continuing education programs should be generated within and undertaken by health-care units themselves, yet for administrative, financial, advisory, and evaluational purposes should be structured hierarchically through coordination at the following echelons: (1) upper-level operating units, which should provide assistance requested or report such requests to the provincial level, (2) provincial health offices, which deal with provincial program development and coordination and arrange assistance, and (3) the Department of Manpower, which deals with national program development

---

*See Edmundo Granda Ugalde, "Summary of the Continuing Education Project," Quito, March 1977.

and coordination and arranges the teaching and financial assistance requested by provincial offices.

The continuing-education goal of communication within and by the health team will be more readily achieved if continuing-education programs are planned, executed, and evaluated by teams in response to the population's social health needs and also meet the team members' need for personal development, self-improvement, and a proper valuation of their respective roles within the team.

Since health care is not only a set of activities that the government offers through its health services but must also be dynamically promoted through community participation, continuing education will therefore also embrace the entire community. Thus it is necessary that the Department of Health Education and Social Communication collaborate in this task so that in the long run the teaching of basic health-care concepts can be included in the activities of the health services in order to lower the present barrier between formal and informal medicine.

Postgraduate education. Since 1970 the University of Ecuador has been training medical specialists in various postgraduate courses. This effort has coincided

with the accelerated growth of the ministry's health services. It has been possible to merge academic needs with those of the health services through coordination by the department, which now defines its activity in this area as: (1) studying university proposals to strengthen specialist training areas and matching them with the health system's needs; (2) examining the financing of such courses, the provision of jobs for their graduates, and related matters; and (3) coordinating postgraduate training with the practical service to which such training should lead.

Laboratory manpower. The department is interested in clearly determining the nature of clinical laboratory activity in the public, quasi-public, and private sectors, and so since 1976 has been gathering information nationally about (1) the relationship between equipment and manpower, (2) the relationship between the complexity of equipment and the technical training of laboratory personnel, (3) the extent of laboratory workers' formal training, (4) occupational orientation determinants, and (5) the frequency and causes of equipment replacement. It is assumed that the laboratory situation differs in various institutions, and therefore an attempt is being made to clarify the ways in which equipment and

manpower are used in order to establish interactive policies and procedures to improve the health services. The department is now codifying information gathered from all parts of the country in a survey of a stratified random sample of laboratories and laboratory manpower.

Classification of medical technologists. Medical technology and technologists are relatively new in Ecuador, and today they face two main problems. The first is that because the University of Ecuador's medical technology curriculum is short (three years), the National Personnel Office has not analyzed the field from a job classification standpoint and so no salary scale has been established for medical technologists. In addition, medical technology has been attacked by members of more highly trained health professions (especially laboratory pathologists) for its attempts to become an independent discipline, and in many instances medical technologists have been confused with laboratory assistants who have no university training. This has resulted in undervaluation of the field's potential, which in turn has hindered its search for adequate status.

The second problem is that the health services are

still trying to incorporate medical technology satisfactorily into their activities. In large part this is because, in the form of technical auxiliaries, they still rely on inexpensive, rudimentarily trained labor in adherence to the pattern of private enterprise.

The department is now working with an Ecuadorian Association of Medical Technology committee to prepare uniform and complete information to allow the National Personnel Office to classify medical technologists appropriately, define medical technologists' areas of activity in the diagnostic and therapeutic fields, and calculate requirements for medical technologists in the government's health services.

The future

It is necessary and also inevitable that a department responsible for developing a nation's health manpower should expand its organization to meet the health sector's requirements. The extent of such growth will vary from country to country and will depend not only on the nature of the population and its needs but even more so on the specific nature of the country's training and use of manpower and the extent to which they are understood and reconciled or changed.

In view of these considerations, the department believes that in the future it should expand its research and coordination activities.

In the area of research, it is paradoxical that a manpower planning department has been created and has grown without having reached a real starting point. This is because everything the department has so far done has been pragmatic rather than scientific and coherent, and even today the department's activities are guided by pragmatism. But the time is coming when it will have to assume a research function in order to operate rationally.

In the area of coordination, the training needs that have led to expansion in governmental health programs in other countries because of direct absorption of training efforts have not affected the department in the same way. The Ministry of Public Health's training function may increase, but most training to produce the manpower to meet Ecuador's health-care requirements will continue to take place outside the ministry. The department should analyze training requirements and coordinate specific training areas, however.

Chapter 5
Honduras

The country and its population

Honduras, whose national territory covers 112,500 km^2, had a population in 1976 of 3 million people, mostly of mixed Indian and European descent (*mestizos*). One-third of them lived in urban areas. It is expected that Honduras' population in 1980 will be 3,092,000.

In mid-1977 the proportion of the population under 15 years was 47 percent, while that over 64 years was 2 percent. At the same time, life expectancy at birth was 54 years.

The country's birth rate in 1975 was 42.8 per thousand population and gross mortality was 14.2 per thousand. The rate of natural population increase was 6.5 percent.

The per-capita gross domestic product was $368.6 (in 1973 dollars) in 1975, when the proportion of illiterates in the population was 58 percent.

Health conditions

The most common diseases in Honduras are gastritis, enteritis, and related conditions attributable to the

unsanitary environment and lack of potable water in many parts of the country, tuberculosis, tetanus, malaria, anemia, vitamin deficiency, and diseases of the digestive system other than gastritis and enteritis.

Anemia and goiter, both caused by malnutrition, are prevalent. The former is especially common in tropical areas except San Pedro Sula, where its incidence is less than half that in rural areas. In such areas children between the ages of 12 and 17 years are highly susceptible, but pregnant women have the highest overall susceptibility. Goiter, resulting from iodine deficiency, presents a serious health problem to the nation. An estimated 17 percent of the population has goiter to some extent, and it is more prevalent and more severe in girls and young women than in men.

A very high proportion of the country's deaths are due to gastritis, enteritis, and associated diseases. During the early 1970s the mortality from infectious and parasitic diseases was decreasing, while that from accidents and chronic diseases was increasing. A precise picture of the country's mortality cannot be sketched, however, because death certification and registration procedures are still inadequate.

Health services

In December 1972, when there was a change in government, the Ministry of Public Health and Social Welfare decided to approach the country's health problems differently.

During the following year an evaluation was made of the health situation, alternatives were drawn up, and action strategies were defined. All this resulted in a decision to undertake a national health plan which would extend health-care services, especially in rural areas. These services were regionalized for greater operational effectiveness, various levels of care were established, a policy of incorporating the community in health activities was instituted, and well-defined priorities to regulate health activities were established.

The national health plan began to be implemented in 1974, and quite soon a series of problems became evident wich had not been foreseen earlier. Among them were a marked shortage of manpower necessary to the various new activities and the unsatisfactory training of already existing health personnel in relation to the new tasks and responsibilities the ministry had undertaken.

Human and physical health-care resources

Human resources. Honduras has 1,150 physicians, or 3 per 10,000 persons (7 per 10,000 in urban areas and 0.4 per 10,000 in rural areas). It has 480 nurses, or 1 per 10,000 persons, and 225 dentists, or 0.5 per 10,000 persons.

Physicians, dentists, and nurses are trained at the University of Honduras. In addition to the university nursing school, there is a private nursing school, 85 percent of whose graduates are absorbed by the Ministry of Public Health and Social Welfare. The ministry is responsible for training technical and auxiliary workers.

The production of health workers in 1976 was 70 physicians, 25 nurses (from the two schools), 15 dentists, and eight microbiologists. This was an increase over previous years and projections indicate that production will continue to grow for at least the next six years, though it will not solve the already noted personnel deficit.

Physical resources. In 1974, Honduras had 38 in-patient facilities with 4,717 beds, or one bed per 622 inhabitants. Roughly three-quarters of these facilities were general hospitals, and about the same proportion of the beds were in government institutions.

Hospital services are largely unavailable in the rural areas, where the population must rely on local pharmacists or mobile health units.

National health policy

The national health plan, which took shape in 1973 and began to be implemented in 1974, is part of the national development plan the government initiated in the latter year. The heart of the national development plan is an agrarian reform program intended to improve the lot of the Honduran agricultural worker substantially. During its initial years this program had its ups and downs, but in promoting so-called "peasant settlements" it resulted in significant changes in the distribution of the agricultural population which in turn generated new social demands, chiefly in the health and education sectors. The national development plan made all sectorial development policies and activities revolve around agrarian reform and gave the Higher Economic Planning Council responsibility for coordinating activities in all sectors.

Within the national development plan, the national health plan is basically designed to establish a decentralized services system through the creation of

eight health regions delimited on the basis of criteria such as the size of the population to be covered, geographic and communications characteristics, and cultural factors, to employ lower levels of care within each of the regions, and to use volunteer community workers at the lowest level.

At the bottom of this service pyramid, Level 1 health-care activities are carried out by unpaid volunteers who are chosen by the community itself and trained and supervised by the health ministry's nursing auxiliary at the next higher level. There are three categories of such volunteers--health wardens, midwives, and representatives of the community health committee (health promoters). The health warden, who receives three weeks of training, will be the first person to see the sick, will be trained to determine when cases should be referred to the nursing auxiliary, and will also conduct epidemiologic surveillance through the detection of five principal symptoms. The midwife, who receives five weeks of training, will identify pregnant women, give them prenatal care, attend normal deliveries, care for the baby, and refer complicated cases. The health promoter, who receives three weeks of training, will promote environmental sanitation.

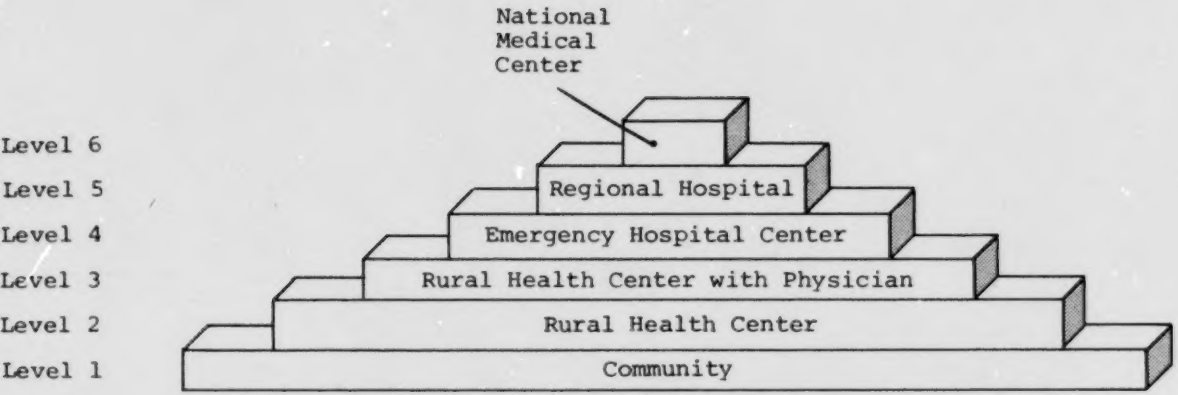
Full-time salaried health workers begin to be used at Level 2, the rural health center. The nursing auxiliary in charge is chosen by her local health region, in which she will work after her graduation, and receives 11 months of training in organizing, training, and supervising Level 1 community activities, epidemiologic surveillance, basic nursing services, maternal and child care, and administration (including referral systems).

Professionals are first used at Level 3, the rural health center with physician, which also has a nursing auxiliary. Medical graduates of the university will spend a mandatory year in such centers.

Level 4 is an emergency hospital center, whose name defines its functions. There are eight of these and they serve problem rural areas of more than 10,000 inhabitants. They render basic services in medicine, pediatrics, maternal and child care, and emergency treatment.

Level 5 is composed of regional general hospitals in the country's larger cities.

Finally, Level 6, the top of the care pyramid, consists of a new hopsital and teaching complex in the country's capital. The 1,200-bed hospital is designed



66

Figure 1. Honduras' Health System.

and equipped to give specialized care to patients referred from the lower care levels.

The national health plan is also to give priority to problems that must sometimes be dealt with outside the lower care levels such as communicable diseases, malnutrition, environmental sanitation, and provision of potable water throughout the country.

Health manpower policy

The country's health manpower policy, which was defined by the ministry's Division of Manpower (see below) in collaboration with other branches of the ministry as well as the national university after consideration of explicitly stated alternatives which took into account the nature and capacity of training institutions, is to develop, manage, and train the health workers needed for Honduras' evolving health-care system in a timely and efficient manner.

Since physicians in various specialties will be required at the higher levels of the care pyramid, postgraduate programs will be designed and carried out in the four major clinical specialities and, over the longer run, in such specialties as dermatology, ophthalmology, anesthesiology, and orthopedic surgery.

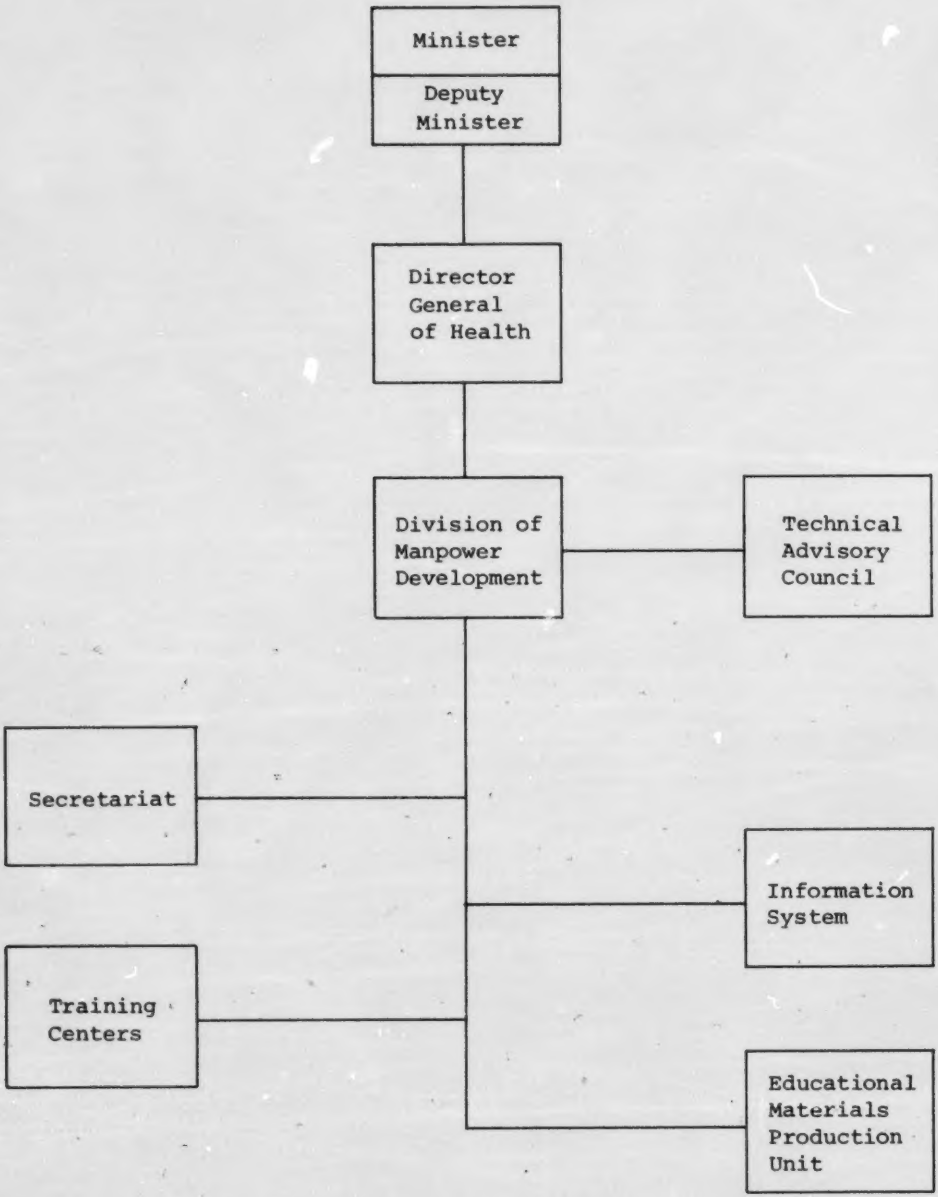


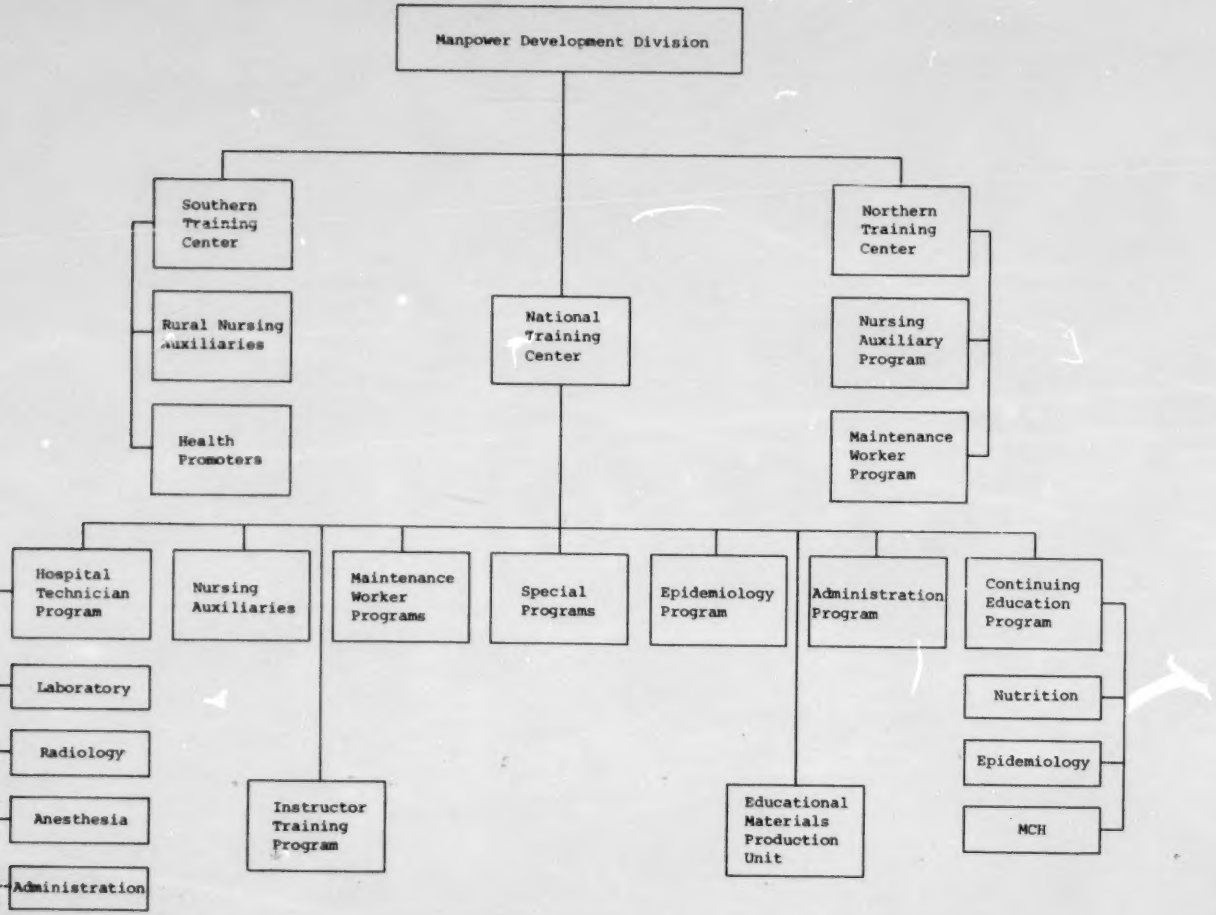
Figure 2. Organization of the Honduran Ministry of Public Health and Welfare.

Mechanisms such as incentives and better salaries will be developed to increase the production of professional nurses from the two nursing schools. Technical and auxiliary personnel will be trained through integrated teaching and care programs based on the activities of the health service.

The ministry's manpower policy also provides mechanisms to regulate and rationalize the use of the health workers thus produced and recommends ways to retain such personnel in service at the various levels.

The health manpower unit.

History. From 1971 through 1974 the Ministry of Public Health and Social Welfare's nearest equivalent of a manpower unit was the Office of Training, which operated in the ministry's Division of Planning without a budget of its own and was responsible only for conducting short courses in environmental sanitation for sanitary inspectors and administering intraministerial scholarships. In January 1975 this office was replaced by the Division of Manpower Development, which began reporting to the Director General of Health, was given a budget of its own, and was made responsible for broad health manpower training and management policies and activities.



gure 3. Program of the Manpower Development Division, Honduran Ministry of Public Health and Welfare.

Since its creation the division has grown rapidly and established mechanisms for intra-, inter-, and extra-ministerial coordination. It has won a major budget increase and has gradually built up its organization on the basis of the phases in the national health plan. Because of the nature of the ministry's activity, the urgent need to support programs to extend health care, and the accelerated construction of hospitals and health centers, manpower development activities dominated the division's first three years. It was anticipated that other activities--particularly manpower planning and research--would begin to receive equal emphasis starting in its fourth year.

Organization. The division has a chief, a medical officer, coordinators for the various programs, secretaries, and personnel to produce material for the information and registration system and for liaison with other divisions. In early 1977 it had a total of 24 instructors in three centers training technical and auxiliary health workers.

Functions. Since its start, the division's goals have been to rationalize manpower production based on the country's needs and health policies, plans, and programs; adapt the health manpower structure to national

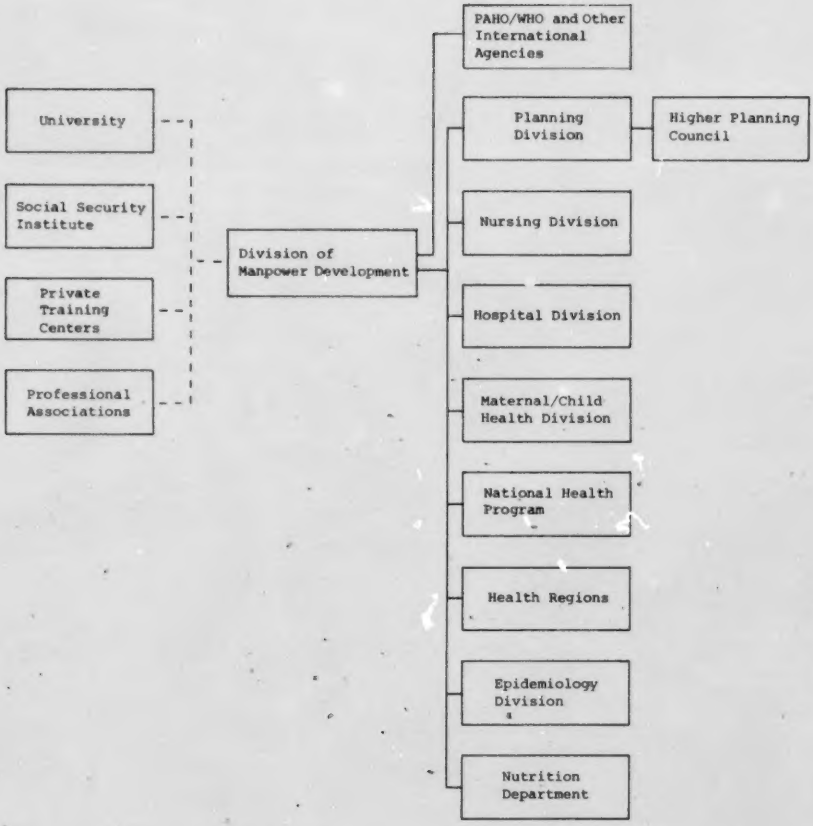


Figure 4. Relationships of the Manpower Development Division, Honduran Ministry of Public Health and Welfare.

requirements; rationalize manpower use; rationalize manpower production expenditures in order to maximize investment yield, and make appropriate use of funds and other support from national and international organizations given for manpower development programs.

These goals necessarily imply a certain amount of research and planning. Research activities, especially of an operational and evaluational nature, are particularly oriented to specific problems pertinent to manpower development and are conducted in collaboration with the national university and other institutions in the health and related sectors. The division stimulates manpower planning by collaborating with planning offices in the health and education sectors, the national university, and other sectors in preparing short-, medium-, and long-term development plans.

The division's specific functions are:

1. Promotion of research on general and specific problems and coordination with the groups who conduct such research.

2. Elaboration of continuous procedures to collect and process manpower information.

3. Development of suitable manpower planning techniques and procedures in line with the established

manpower development policy to define the kind of manpower required and establish annual production quotas for each kind of health worker.

4. Design and implementation of programs to publicize health careers and recruit new personnel.

5. Determination of the annual costs of the manpower program.

6. Technical assistance to nonuniversity manpower training centers.

7. Maintenance and strengthening of collaborative relations with the National Autonomous University of Honduras and other autonomous and private institutions that train health workers.

8. Coordination with and promotion of assistance from the rest of the ministry's divisions, the university, the Honduran Social Security Institute, the Higher Economic Planning Council, and international or foreign organizations such as the Pan American Health Organization and its Latin American Center of Educational Technology for Health in Rio de Janeiro and the Education Development Center at the University of Boston, Massachusetts, U.S.A.

The unit's programs

Among the division's programs are:

1. Administration of the ministry's scholarship program. This entails establishment of a national scholarship policy in the health field, promotion and management of international scholarships, liaison with scholarship holders during their studies, following their later careers, continuous evaluation of the ministry's scholarship program and execution of changes made necessary by evaluational findings, and programming of scholarships and other financing of continuing education activities for all ministerial health workers.

2. Permanent registration. A specific section in the division is responsible for organizing a constantly updated personnel registration system using entry data from the various professional and other schools that collect them and drawing up processing procedures.

3. Developing educational methodology, audiovisual aids, and other training materials for health workers at various levels, or arranging for their development elsewhere in the ministry, and teaching instructors such methodology and how to use training materials.

4. Conducting training programs in three training centers for the laboratory, anesthesia, radiology, medical records, administrative, and maintenance employees needed at Levels 4, 5, and 6 of the health-care pyramid.

5. Indoctrinating last-year professional students in the ministry's manpower policies and activities.

6. Developing and conducting continuing-education short courses to keep health workers at all levels professionally up to date, with special emphasis on nutriton and epidemiology.

Chapter 6
United States

The country and its population

The United States, which covers 9,937,805 km^2, had an estimated population in 1976 of 215.8 million people, 73.5 percent of whom lived in urban areas. It is anticipated that the country's 1980 population will be 224 million.

In mid-1977 the proportion of the population under 15 years was 26 percent, while that over 64 years was 10 percent. At the same time, life expectancy at birth was 72 years. The birth rate in 1974 was 14.9 per thousand population and gross mortality was 9.15 per thousand. The rate of natural population increase was 0.6 percent, and the population's estimated doubling time is now 116 years.

The country's per-capita gross domestic product in 1975 was $7,101 (in 1973 dollars), and in 1970 the proportion of illiterates in the population was 1.2 percent.

Health conditions

Generally speaking, the United States is a relatively healthy country, though critics of the American health

scene often note that some countries in northwestern Europe have slightly better health indices in areas such as infant mortality or male longevity. It must be pointed out, however, that the American population is more varied economically, socially, culturally, and ethnically than those in Europe, and that American general health statistics conceal gross disparities between indicators for specific subpopulations. The thrust of American government health activity today is to iron out those disparities.

Health services

The federal government. The role of the federal government in American health affairs is large, but it provides relatively little of the nation's direct health care. The federal agency primarily concerned with health is the Department of Health, Education, and Welfare--the government's largest in budget--which is involved in health matters chiefly through the Public Health Service (PHS).

The PHS has six major agencies: the National Institutes of Health (NIH), the government's biomedical research arm; Food and Drug Administration (FDA), which regulates the quality and use of products influencing health; Center for Disease Control (CDC), the only one

of the six agencies not headquartered in the Washington area (it is in Atlanta, Georgia), which was once concerned entirely with infectious diseases but now carries out programs to control other diseases as well; Health Resources Administration (HRA), which deals with health manpower training and health planning; Health Services Administration (HSA), which manages some of the government's direct-care programs, and Alcohol, Drug Abuse, and Mental Health Administration (ADAMHA), which conducts research, training, and service activities in its area of responsibility.

Some of the federal government's direct civilian health-care services are provided by HSA through such components as its Bureau of Community Health Services, which operates a migrant farm workers' health program and 150-odd community health centers serving 1.5 million poor people; the Indian Health Service; or the PHS's eight hospitals.

Though each of the other five agencies is concerned with manpower problems in its own way--NIH is interested in the development of clinical researchers, CDC in diagnostic laboratory personnel, and ADAMHA in addiction specialists, for instance--the principal agency dealing with health manpower training problems is HRA. HRA's

two components, the Bureau of Health Manpower and the Bureau of Health Planning and Resources Development, will be described in detail below.

State and local governments. Every state and territory in the United States has a health department of one kind or another, as do many of the nation's counties and cities. Like their federal counterparts, most state health departments are more concerned with standard-setting, regulatory, and public health activities than they are with direct health care, though they often help finance the latter through grants to localities.

In addition to their normal public health functions, many county and city health departments operate sizable hospital systems. Some American municipal hospitals--Bellevue in New York, for instance--are famous for their research, training, and specialized medical services. In general, county and city hospital systems are today financially troubled because suburbanization has shrunk the tax base that supports them; another growing problem they face is the dwindling supply of foreign medical graduates who comprise a large proportion of their house staffs. In addition to hospital networks, counties and cities often also operate specialized clinic systems, as for venereal diseases, alcoholism and drug addiction

rehabilitation, and vaccination.

The private sector. Nongovernmental health care accounts for the overwhelming bulk of the health services Americans receive.

Though the number of physicians who practice alone is still large, group medical practice is becoming increasingly common. A group practice may be a partnership of physicians in a single or several specialties who practice together for mutual convenience--they can refer patients to each other, rotate on-call duties, and share office expenses--or it may be a practice known as a "health maintenance organization" (HMO).

HMOs are nonprofit corporations whose professional staffs are salaried rather than dependent on fees for individual services and whose patients pay a fixed periodic charge for a prescribed set of services, which they may use as often as they feel necessary. Hospitalization is often among the services included in an HMO package. In 1977 the United States had 175 HMOs with 6.5 million members. Though it is federal policy to promote the development of HMOs, their growth has been far less than originally anticipated.

Except for nursing, other common health-care services such as dentistry are also performed by private

practitioners. Health professions practitioners are becoming increasingly specialized, though not yet to the same degree as physicians. Nurses, as is the case in most countries, practice largely in hospitals and almost all are salaried.

Financing health services. Perhaps the foremost question in the United States today is how to pay for health care. The cost of catastrophic illness can bankrupt middle-class families, and health-care costs have climbed at a faster rate than in other sectors of the economy. In 1960 the nation's health expenditures were estimated at $25.9 billion, or 5.2 percent of the gross national product; in 1975 they were believed to be $122 billion, or 8.4 percent of the gross national product. The average American has learned that at times health care can be almost prohibitively expensive.

Third-party payments, defined as all payments for health care which are not paid directly by consumers, are becoming increasingly important as a source of payment for personal health care. Private health insurance carriers, e.g., Blue Cross-Blue Shield plans, are the major source of third-party payments in the private sector. Government sources of third-party payments include governmental payment for care provided by the

private sector as in Medicare and Medicaid.

Medicare is a nationwide health insurance program for people 65 and over, for persons eligible for social security disability payments for over two years, and for certain workers and their dependents who need kidney transplantation or dialysis. Medicaid is a federally aided but state operated and administered program that provides medical benefits for certain low-income persons in need of health and medical care. The percentage of personal health care expenditures paid by the federal government has been rising steadily since the enactment in 1965 of Medicare and Medicaid, reaching 28 percent by 1976.

Many health economists believe that some form of "national health insurance" (NHI) may be the answer to the problem of rising costs, but all are quick to concede that if the federal government does begin to pay for the health care of all Americans fully or almost fully--the generally accepted definition of NHI--the health industry will have to be regulated more closely.

Quality of health services. During the 1970s the quality of health services became a topic discussed almost as much as their financing. The figure oft-mentioned in the press that 5 percent of doctors practice

incompetently, the increasing failure of hospitals to meet the more stringent standards of their national accrediting agency, and the rising number of malpractice suits (with concomitant increases in malpractice insurance premiums) against health practitioners and facilities are all signs of growing public doubt about the quality of care the health industry is providing.

Largely as a result of these doubts and increasing governmental intervention in this area, many professional associations are now adopting rules to require their members to take part in continuing-education programs.

Human and physical health-care resources

Human resources. The health sector is today one of the largest in the American economy in both numbers of workers and dollar volume. In 1975 the Department of Health, Education, and Welfare estimated that 4.7 million Americans, or 6 percent of the national work force, were employed in the health industry in more than 100 occupations.

That the health work force has been growing faster than other parts of the labor force is seen in the estimates that only 1 percent of Americans were employed in the health industry at the turn of the century and

only 2 percent in 1930. Health-related employment has also become more institutionalized: in 1930, only one-third of health workers were employed in hospitals; today, roughly two-thirds are.

(a) Physicians. In 1977 the United States had approximately 375,000 active medical doctors.

During the 1960s, when the physician-population ratio hovered around 14.5 per 10,000, there was wide agreement that the country had an absolute shortage of physicians. Congress enacted a series of statutes starting in 1963 and extended periodically to encourage greater production of health professionals, particularly physicians. A highlight of the 1971 extension of health manpower training authority was "capitation"--the principle that the federal government would support health professions schools financially in proportion to the number of students they enrolled as an inducement to increase the number of students in each school.

By the mid-1970s, the physician-to-population ratio had improved, partly as a result of federal support of health professions training, to around 17.7 per 10,000, and some experts were beginning to ask whether the country might be developing a physician surplus.

In 1963 the country had 87 medical schools with

32,000 medical students, while in 1977 it had 123 medical schools with 60,000 medical students. During the same period the number of actively practicing physicians increased by 100,000.

In the middle of the 1970s, then, the theory of an absolute physician shortage gradually gave way to one of relative shortages of physicians in certain geographic and specialty areas.

The geographic areas in which physicians were thought to be critically short supply were inner cities, which in recent years had lost some of their affluent middle class to the suburbs and were inhabited by a growing number of the poor, and rural areas, which had also lost population and income as the country industrialized. It was noted during the congressional debates of 1974 on revisions in the earlier manpower statute that, roughly speaking, suburbs had four times as many physicians in relation to their population as did inner cities and that twice as many physicians practiced in the country's urban areas as in its rural areas. Less serious variations in physician-to-population ratios between regions and states were also pointed out.

The main area of practice in which there was held to be a shortage was primary care.

In the early years of the century almost all American physicians were general practitioners. By the 1920s the trend toward specialization was evident as the number of physicians who entered specialized residencies after receiving their doctorates and completing their required internships began to increase. Partly because of its relatively high income and partly because of its glamor, surgery began to attract what is today seen by some as a disproportionate number of physicians.

By the early 1970s more than 95 percent of all new medical graduates were entering specialty training, though lesser proportions were going on to take and pass the examinations required for certification as specialists.

The proportion of general practitioners who had only an M.D. and a year or two of internship declined steadily as older practitioners retired and younger ones sought specialty training. In an effort to halt the decline of family practitioners, family medicine was established as a specialty in 1969. The training of family pysicians, which requires three years of post-doctoral study, has been strongly supported by the federal government.

The influx of alien physicians has contributed substantially to the increase of this country's medical manpower in recent years. They have become a vital component of many health facilities, especially large urban hospitals. After completing their specialty training, these physicians usually established practices in the United States.

In the early and mid-1970s a reaction to the country's dependence on foreign medical graduates began to develop, in part because of growing doubts about the suitability of their undergraduate medical education and command of the English language. As a result of this changed thinking, visa regulations and admissions tests were made more stringent. These procedural revisions, plus the country's increasing self-sufficiency in physician production, indicate that the United States plans to become less and less dependent on foreign medical graduates.

Because medicine is one of the most lucrative and prestigious occupations in the United States, the number of American applicants to domestic medical schools has for many years exceeded the number of first-year openings between two- and threefold. The ratio of applicants to openings peaked in 1975 and then began a decline which is expected to continue; in 1977, there were 41,000 applicants for 16,000 first-year studentships.

Though the applicant-to-opening ratio has remained fairly stable in recent years, the number of Americans rejected by domestic medical schools who decide to go abroad for undergraduate medical training has increased steadily during the 1970s. Between 6,000 and 10,000, or one-seventh to one-eleventh, of all American medical undergraduates were studying abroad in 1977. Almost all want to return to the United States to complete their studies, either part way through their undergraduate medical course abroad or to enter American residencies after having received foreign medical degrees, and then to practice.

The federal government has increasingly encouraged medical schools to accept women and minority members (blacks, persons of Spanish heritage, those of Asian extraction, and American Indians) as students. The government's usual carrot-and-stick method of achieving its goals in the health manpower sphere has worked in this as in other areas, and today considerably more women and minority members are becoming physicians than a decade ago, though considerable criticism of the adequacy of their numbers persists.

(b) Dentists. The United States had 112,000 active dentists in 1975, or 5.3 for every 10,000 people in the

country. The dentist-to-population ratio is naturally not consistent but varies among social, cultural, and economic groups and geographic areas. In the middle Atlantic states, for instance, there were 6.7 dentists for every 10,000 people, but in the southeastern part of the country there were only 3.4 per 10,000 inhabitants.

Of the 112,000 dentists, about 86.6 percent are in private practice, the predominant mode of dental service in the United States. More than 97 percent of the total dentist population provide direct patient care, while the remainder are engaged in teaching, research, and administration. Roughly 10 percent of dental practitioners specialize (there are eight recognized dental specialties), and the proportion of specialists has been rising.

The dental profession is predominantly male (96.5 percent of American dentists today are men), though as in medicine the number of women entering the profession has been increasing. There has also been some increase in the proportion of minority-group members practicing dentistry.

In the mid-1970s, particularly because of the founding of 10 new dental schools during the previous decade, the supply of dentists began to increase markedly. There are

59 dental schools; in 1977 they produced 5,300 dentists.

The team concept of care is more advanced in dentistry than in medicine in the United States: dentists seem to have recognized more readily than doctors that their productivity--and hence earnings--will be greater if they turn routine tasks over to assistants. In 1977 there were believed to be 27,000 dental hygienists, 134,000 dental assistants, and 41,000 dental laboratory technicians in the United States, and in 1976 the country's 174 dental hygiene and 264 dental assistant schools produced 4,500 hygienists and 6,000 assistants, respectively.

(c) Nurses. Nursing, by far the largest occupational category in the American health field, was estimated to include 2,751,000 persons in 1976. Within this overall group were 961,000 registered nurses (RNs), or 35 percent of the total; 489,000 licensed practical nurses (LPNs), or 17 percent; 301,000 students, or 11 percent, comprising 243,000 RN and 58,000 LPN students; and 1 million aides, orderlies, and attendants, or 37 percent of the total.

The national RN-to-population ratio in 1976 was about 48 per 10,000, though it varied widely, some states having 25 and others 85 RNs per 10,000 people. LPN dis-

tribution follows the same pattern.

More than 65 percent of the country's RNs work in hospitals. Around 9 percent of RNs are in public health nursing and a similar proportion are in school nursing. The rest of the RN force work in such varied settings as nursing homes, private homes, physicians' and dentists' offices, industry, nursing schools, or government offices. Over half of all RNs are engaged in general-duty practice in institutions and private homes; the remainder are in supervisory, administrative, or faculty positions.

A significant aspect of the careers of both RNs and LPNs is that large numbers leave nursing for a period of years to bear and raise children. A high proportion eventually return, and the nursing profession has devised refresher courses for nurses reentering the field. It is estimated that at any given time about one-quarter of the country's nurses are not practicing.

In contrast to many Latin American and other countries, nurses have relatively high prestige in the United States. A frequent complaint of RNs appears to be not about their status but that, as professionals, they are sometimes ill-paid and required to perform tasks they feel could be carried out by persons with less training.

Three types of training programs prepare RNs, who comprise the most highly trained segment of nursing personnel--diploma, associate degree, and baccalaureate programs. The current number of each are 461, 621, and 330, respectively. Diploma programs, the oldest type, are offered by hospital-based nursing schools; associate degree programs are given in two-year junior or community colleges; and baccalaureate programs are offered by four-year colleges and universities. After becoming RNs, nurses may continue their studies to receive a master's degree (92 programs) or a doctoral degree (14 programs).

Among the 961,000 RNs in 1976, 80 percent had received their training in diploma or associate degree programs, 17 percent had baccalaureate training, and 3 percent had master's or doctoral degrees.

The present trend is toward continuous upgrading in the education of RNs. Thus, in 1990, when the government predicts there will be 1.5 million RNs, it is anticipated that 62 percent will have associate degrees or diplomas, 33 percent will have completed baccalaureate programs, and 5 percent will have master's degrees or doctorates.

Continuing-education programs are being emphasized by both federal and state governments as well as nursing

societies. Like other health professionals, nurses are licensed to practice by examining boards in their respective states, several of which are now requiring some evidence of continuing education for future relicensure.

An important trend in registered nursing today is the development of "nurse practitioner" training programs. This additional training prepares RNs who can give primary health care without the immediate supervision of a physician. Such practitioners can relieve physicians of routine examination and treatment tasks, as in offices or clinics, or they may be responsible for general health care in places where there are no doctors and rely on telephone, radio, or television consultation with physicians at a distance.

(d) Other health professions. In addition to medicine, dentistry, and nursing, the United States has four other traditional health professions--pharmacy, optometry, podiatry, and veterinary medicine.

The largest of these is pharmacy, with 130,000 practitioners in 1976. There are 72 schools of pharmacy --52 public and 20 private--and, since there is at least one pharmacy school in almost every state and pharmacists tend to practice in the states where they were educated, they are among the best distributed of health pro-

fessionals. Together the pharmacy schools have 30,000 students and produce 8,000 graduates a year, an adequate supply to meet the country's needs.

Optometry had almost 20,000 practitioners in 1975 and 13 schools (seven public, six private). Optometrists, who receive four years of training usually preceded by two or three years of preoptometric study, must be distinguished from ophthalmologists--physicians specializing in eye care who are permitted to prescribe drugs and practice surgery. Optometrists have in recent years begun to receive training in broader eye care than refraction and are beginning to be permitted to use drugs in their practice.

Podiatry is the smallest of the health professions, with more than 7,300 practitioners and five schools, four in eastern states and one in California.

The United States had 31,800 veterinarians in 1975 and 21 veterinary medicine schools, only two of which were privately operated. This profession is attracting increasing numbers of students.

(e) Public health specialists. Specialists in public health are persons who already have degrees in traditional health disciplines, whether medicine, dentistry, nursing, or biostatistics. The commonest

public health degree is the master's in public health (M.P.H.), though doctorates are also awarded. The 19 American public health schools prepare 6,000 trainees annually.

(f) Allied health workers. The American health sector employs more than 3 million allied health workers. The more than 100 allied health occupations are not always well defined and the length of training within even one occupation may vary considerably since not all of them have national training standards, but--loosely speaking--allied health workers who receive substantial training are often called technologists, those with intermediate training are called technicians, and those with the least training are called aides.

The largest allied health occupations are clinical laboratory personnel of various kinds, of whom there are more than 180,000; radiology technologists, 105,000 to 110,000; dieticians, 50,000; physical therapists, between 25,000 and 30,000; and occupational therapists, 16,000.

Physical resources. When the average person thinks of physical health resources, he of course thinks of hospitals. But in the United States as elsewhere, there are many other kinds of health facilities--private

practitioners' offices, many of which are grouped together in buildings containing ancillary shops such as pharmacies and eyeglass dealers; vaccination, venereal disease, and other clinics; walk-in-and-out surgeries where patients can go for minor operations requiring no convalescence; nursing homes, and perhaps a dozen more major types.

Hospitals together, however, comprise by far the largest institutional element in America's physical health resources. There are approximately 8,300 of them, ranging in size from institutions with fewer than 10 beds to mammoth urban hospitals covering several blocks with thousands of beds. Most are "voluntary" or nonprofit institutions, but about one-eighth are "proprietary" or profit-making organizations.

In contrast to other countries, the federal and state and local governments operate a relatively small proportion of American hospitals. The federal government's hospital operations consist almost entirely of military, Veterans Administration, Public Health Service, and Indian Health Service institutions.

State governments are best known for their mental hospitals, but because of the emphasis placed on community psychiatric clinics since the mid-1960s, many

of the country's mental institutions have become depopulated and have closed down. Local governments often operate large municipal hospitals, but as noted earlier, many of these have encountered severe financial difficulties.

National health policy

American health policy, if taken to mean a coherent set of health goals for the entire country, can be called developing. Other countries can speak with some justification of their health systems, whose parts are made to interrelate through governmental action, but commentators in the United States are wont to talk about the American "nonsystem" of health-care delivery.

Until recent years, personal health care in the United States was almost entirely a matter of direct dealings between patients on the one hand and practitioners on the other. Solo, fee-for-service care prevailed, patients bore the cost of medical and dental treatment, and practitioners made greater or lesser efforts to lower or waive fees for the poor--when the poor received treatment. Government rarely intervened in health matters except in the small domain of public health, and third-party payments for health service, whether by the govern-

ment or commercial insurance companies, were almost unknown.

The upsurge of social consciousness of the 1930s which stemmed from the Depression led to some interest in bettering the nation's health and welfare. This interest was concretely expressed in the establishment of the Federal Security Administration (the predecessor of the Department of Health, Education, and Welfare), the founding of a handful of group practices, and the growing inclusion of health benefits clauses in union contracts.

It was really not until the mid-1960s, however, that the federal government began to intervene seriously in health-care delivery. In 1965 Congress enacted the Medicare program to pay for the health care of the elderly, and very quickly the government began finding out just how expensive and inflationary health care can be.

The prospect of national health insurance, which would pay for everyone's health care and not just that of certain parts of the population, underscored the need for cost containment. To improve such control, the government has increasingly intervened to regulate various aspects of health care, and the more it has intervened the more apparent it has become that the delivery of health services must be rationalized so that

the many cogs in the country's health machine mesh with each other properly.

The federal agency constitutionally charged with policy making in the broadest sense is the Congress, which consists of a Senate with 100 members and a House of Representatives with 435 members. Enacting a law, from the introduction of a bill to its signing, is a complex process in which the Executive Branch participates to varying degrees.

A bill may be introduced in either chamber by a Congressman or Senator. Each bill is referred to the appropriate committee. Health legislation usually goes to the Human Resources or the Finance committees in the Senate or the Interstate and Foreign Commerce or Ways and Means committees in the House. The full committee normally refers a bill to the appropriate subcommittee.

Public hearings may be held on a bill with witnesses representing the Administration, interest groups, or the general public. Some of the organizations that testify frequently on health manpower legislation include the American Medical Association, the Association of American Medical Colleges, the American Dental Association, the American Nurses' Association, and the National League for Nursing.

After the committee approves a bill, it is sent to the floor for debate. There are time limits on debate in the House but usually not in the Senate. If one chamber approves a bill, it is sent to the other chamber and goes back to the appropriate committee and subcommittee. If both chambers approve a bill but the two versions differ, the bill is sent to conference committee. This committee, which consists of specialists from the two chambers, resolves differences and its members report back to their respective chambers. Each chamber then votes on the compromise bill. If both chambers approve, the bill is sent to the President for signature. A bill may be killed at any step of the process in either chamber. The President may veto a bill but his veto may be overridden by a two-thirds majority of both chambers.

If a bill becomes law and authorizes expenditure of federal funds, the entire legislative process, with some significant variations, must be repeated in appropriating those funds. Appropriations legislation must originate in the House of Representatives and is handled by the appropriations committees in both chambers.

Because federal statutes are by nature general, departments responsible for executing them must draw up regulations defining them in detail. Such regulations,

which legally are considered extensions of the statutes from which they derive, are prepared in an established process which often seems as complex as the legislative one itself.

Health manpower policy

Federal support of health manpower training programs is authorized by the Health Professions Educational Assistance Act of 1976. The law, which is administered by HRA's Bureau of Health Manpower, authorizes $2.8 billion for health manpower training activities for the four-year period, fiscal 1977-80.

Unlike previous health professions legislation, the 1976 act does not put primary emphasis on expansion of health training facilities but stresses the training of primary-care practitioners and improvement of health services in manpower shortage areas.

The 1976 legislation provides support for:

- Schools of medicine, osteopathy, dentistry, pharmacy, podiatry, optometry, public health, and veterinary medicine through capitation grants based on enrollment;

- Health professions students, with most funds tied to an obligation to serve in manpower shortage areas;

- Area Health Education Centers which are designed to improve staffing of health manpower shortage areas by linking medical schools with community facilities;

- Financially distressed health professions schools;

- Construction of teaching facilities, with emphasis on ambulatory care facilities;

- Training primary-care (family medicine, general internal medicine, and general pediatrics) physicians;

- Expanding opportunities for disadvantaged students;

- Training physician and dental extenders; and

- Allied health and public health training programs.

The legislation also amends immigration laws to tighten restrictions on the entry of alien physicians and provides authority for the operations of the National Health Service Corps. The Corps, which is administered by the Health Services Administration, is the federal government's main effort to staff health manpower shortage areas.

Training of nurses is authorized under separate legislation also administered by the Bureau of Health Manpower. The Nurse Training Act of 1975 provides support for:

- Nursing programs through capitation grants based on enrollment;

- Nursing students;
- Special projects for such purposes as establishing nurse training programs, improving programs, increasing educational opportunities for disadvantaged students, providing continuing education, and improving the distribution of nurses;
- Financially distressed nursing schools;
- Construction of nursing schools;
- Training nurse practitioners; and
- Advanced training of nurses as supervisors, administrators, or nurse specialists.

Another statute expected to influence American health manpower development is the National Health Planning and Resources Development Act of 1974. Administered by HRA's Bureau of Health Planning and Resources Development, the law was enacted to improve health services and to control costs through the systematic planning and allocation of health-care resources.

The law's emphasis is on health-care buildings and equipment rather than personnel, largely because of evidence of overbuilding of hospitals in some parts of the country and even more widespread duplication in hospitals of expensive services such as coronary care units.

More than 200 "health systems agencies" have been created under the 1974 statute, each responsible for an area with between 500,000 and 3 million people. Each agency has a policy-setting board and staff, and to avoid domination of agency decisions by health-care providers the law stipulates that at least half of a board's members must be health-care consumers. Once an agency has been formed, it becomes responsible for developing long-term health objectives in its area, preparing and carrying out annual implementation plans, reviewing and approving or disapproving applications for federal funds for area health programs on the basis of their need, and aiding statewide health planning agencies also established by the law.

State agency activities include developing statewide health plans, reviewing all capital expenditures for health facilities within the state, determining the need for any new institutional health services, and reviewing the need for existing health facilities.

Although the planning statute was intended to deal primarily with physical rather than human health-care resources, it seems likely that activities carried on under it will ultimately influence manpower training and use, while future revisions of the act may deal more

specifically with health personnel planning.

Health manpower units

The Department of Health, Education, and Welfare's Health Resources Administration is the principal federal agency responsible for health manpower training and health planning. HRA itself as well as its components, the Bureau of Health Manpower (BHM) and the Bureau of Health Planning and Resources Development (BHPRD), are located at Hyattsville, Maryland, a few miles north of Washington.

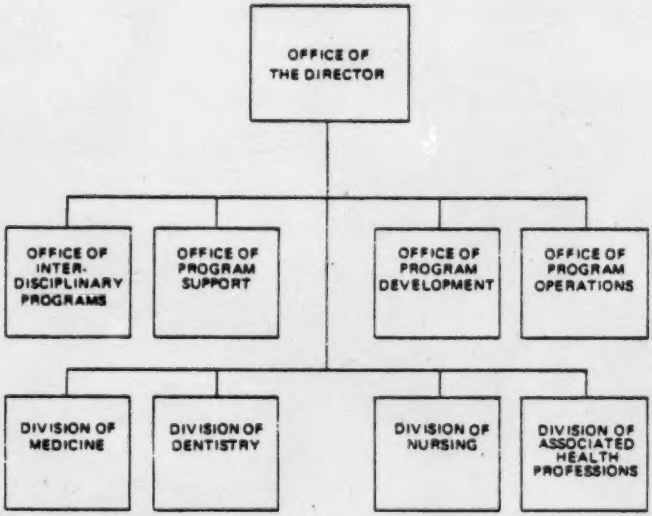
Since its formation in 1967, BHM's staff has fluctuated between 400 and 700 over the years. Its appropriations have ranged from a low of $267.2 million in fiscal 1969 to $740.7 million in fiscal 1973, and in fiscal 1977 its appropriations were $532.8 million.

The internal reorganizations through which the Bureau has gone are too numerous to mention, but its organization in fiscal 1977 is shown in Figure 1. The Division of Associated Health Professions is responsible for matters concerning pharmacy, optometric, podiatric, and veterinary training as well as the training of allied health workers and public-health specialists.

The Bureau conducts manpower analysis activities

Figure 1

Bureau of Health Manpower (Fiscal 1977)



including studies of the supply of and requirements for various types of health workers. It also designates health manpower shortage areas. Designation makes an area eligible for the services of National Health Service Corps practitioners.

The Bureau of Health Planning and Resources De-

velopment came into existence in the HRA reorganization of May 5, 1975, as a consequence of the passage of the 1974 act of similar name which it now administers. As earlier noted, BHPRD is more concerned with physical than human health resources, but it has surveyed and begun to define health manpower planning in the United States.*

Bureau of Health Manpower programs

The following were among the Bureau's principal activities in fiscal 1977:

Institutional support. Capitation grants are designed to assist the country's health professions

---

*BHPRD publications in this area include *Health Manpower Planning Process*, Washington, GPO, 1975, 48 pp. (DHEW Publication No. (HRA) 76-14013); *Methodological Approaches for Determining Health Manpower Supply and Requirements, I: Analytical Perspective*, Washington, GPO, 1976, 74 pp. (DHEW Publication No. (HRA) 76-14511); and *Methodological Approaches for Determining Health Manpower Supply and Requirements, II: Practical Planning Manual*, Washington, GPO, 1976, 197 pp. (DHEW Publication No. (HRA) 76-14512).

schools maintain financial stability. In fiscal 1977, the Bureau awarded almost $158 million, or slightly less than one-third of its budget, in capitation grants to 1,355 schools. The number of schools receiving grants and the amounts by discipline were: 123 medical schools, $70.0 million; 57 dental schools, $25.2 million; 71 pharmacy schools, $10.6 million; 12 osteopathic schools, $4.9 million; 22 veterinary schools, $4.8 million; 12 optometry schools, $1.4 million; five podiatry schools, $975,947; and 1,053 nursing schools comprising 363 baccalaureate programs, $20.2 million, 522 associate-degree programs, $12.9 million, and 168 diploma programs, $6.4 million.

A total of $34.8 million was awarded under health professions and nursing special project programs to assist schools in carrying out various national goals such as improving the quality of education, fostering educational innovations, encouraging students to enter primary care, and promoting interdisciplinary training.

Health professions construction grants totaling $26 million were awarded to expand regional veterinary medical schools in Alabama, Pennsylvania, and the northwestern part of the country and to create a new one in Massachusetts.

BHM awarded financial distress grants to seven schools (two dental, two podiatry, one medical, one pharmacy, and one veterinary) during fiscal 1977, five fewer than in the previous year, totaling $4.5 million. The reduction in the number of schools receiving distress aid was attributed partly to the success of management studies sponsored by the Bureau.

The 19 schools of public health were awarded $5.8 million in formula grants for continuing development. Public health schools and other eligible institutions received $5.4 million in 81 project grants.

In support of allied health training, eligible entities received $12 million in special project grants and contracts. Some $8.9 million was awarded in special improvement grants.

A record $9.9 million was awarded under the Health Manpower Education Initiative Program to eligible institutions to train disadvantaged students for health careers. More than $4 million in health professions and nursing special project support was awarded to broaden health training opportunities for disadvantages students. The funds assisted projects to recruit, admit, and retain minority students as well as efforts to make the curriculum more responsive to culturally diverse students.

Alleviating geographic inequities. The principal BHM programs concerned with improving the geographic distribution of health manpower are Public Health/ National Health Service Corps (PH/NHSC) Scholarships, Area Health Education Centers (AHECs), and shortage-area designation activities.

With appropriations up to $40 million, a record 3,600 PH/NHSC Scholarships were presented for the 1977-78 school year to students who will be required to practice in shortage areas. Of the 2,089 new awards, 1,594 were presented to medical students, 240 to osteopathic students, and 100 to dental students.

Since the beginning of the PH/NHSC Scholarship Program in the 1973-74 school year, a total of 5,719 students participated. Only students of medicine and osteopathy were eligible during the first two years. The total number of participants by discipline at the close of fiscal 1977 was: 5,366 medicine, 198 dentistry, and 155 other. Because of deferments for postgraduate specialty training, only 26 participants had completed their service obligation as of September 30, 1977. On that date about 275 physicians and dentists were carrying out their service obligation with the National Health Service Corps, the Indian Health Service, and the Bureau of

Medical Services, three components of the Health Services Administration. In 1978 some 660 additional participants including 450 physicians are expected to begin their service commitment.

About 150 additional areas were designated in fiscal 1977 as having critical medical or dental manpower shortages, making them eligible for placement of NHSC personnel. As of September 30, 1977, there was a total of 1,106 critical medical shortage areas and 854 critical dental shortage areas.

New criteria and regulations for designation of health manpower shortage areas under the Health Professions Educational Assistance Act of 1976 were developed during fiscal 1977. Designated areas will be eligible service areas for purposes of the National Health Service Corps, NHSC Scholarship, and loan repayment programs. Application of these criteria will substantially change the number and distribution of designated health manpower shortage areas in the United States. Under the revised definition, health manpower shortage areas may include urban or rural areas, population groups, and public or nonprofit private medical facilities or other public facilities.

The number of health practitioners agreeing to serve

in shortage areas for repayment of educational loans reached 2,206 as of Setpember 30, 1977. The total included: 761 physicians; 729 dentists; 273 podiatrists; 179 veterinarians; 105 optometrists; 91 pharmacists; and 68 nurses. Some 452 served with the National Health Service Corps, 332 with the Indian Health Service, and 1,422 with nonfederal programs.

The Area Health Education Center program, which has funded 11 AHECs operating in underserved areas in 14 states, expanded in fiscal 1977 into four more areas--Colorado, Maryland, Pennsylvania, and the District of Columbia--with the award of four new planning contracts. The AHEC program is designed to stimulate new approaches to health problems in underserved areas through decentralized educational programs.

Improving specialty distribution. One of Congress's foremost concerns as it debated the 1976 health manpower statute was the country's relative lack of primary-care physicians. The law provided that to receive capitation grants in fiscal 1978, medical schools in the aggregate had to have at least 35 percent of filled first-year residency positions in primary care as of July 15, 1977, 40 percent for fiscal 1979 grants, and 50 percent for fiscal 1980 capitation grants.

BHM determined that as of July 15, 1977, the country's medical schools had 52.8 percent of their first-year residency positions in the primary-care area --more than enough to meet the 1980 requirement. This percentage resulted in part, however, from the inclusion in the count of residents who would later enter subspecialties of internal medicine and pediatrics rather than remaining in primary care.

To study physician specialty distribution in relation to graduate medical education, the Graduate Medical Education National Advisory Committee (GMENAC) was organized in early 1977. This 21-member committee, which is composed of 18 appointed and three *ex officio* members representing the Departments of Health, Education, and Welfare and of Defense and the Veterans Administration, began meeting quarterly on June 27, 1977.

GMENAC is scheduled to present a preliminary report to the Secretary of Health, Education, and Welfare in December 1978.

Almost $39 million was obligated in fiscal 1977 to support the training of family physicians. Federal funds are supporting the training of more than 4,000 residents in family medicine.

Some $7.1 million was awarded under a new primary-

care residency program. Forty-seven grants awarded to programs in 22 states and the District of Columbia will directly support 412 general internal medicine positions and 330 general pediatrics positions in the 1978-79 school year.

An estimated 3,000 medical and osteopathic students are being trained in 60 primary-care preceptorship programs supported by BHM. A preceptorship is an off-campus experience in a clinical or community setting under the supervision of a practicing professional. Some preceptorships are located in manpower shortage areas and geared toward encouraging students to practice there.

Student assistance. More than $122 million, almost one-fourth of the funds obligated by BHM in fiscal 1977, was awarded for student assistance. More than 50,000 health professions, nursing, allied health, and public health students benefited from these programs. The largest number of students was assisted by the health professions and nursing loan programs, which totaled $46 million. About 19,800 health professions students were assisted with $23.8 million in loans and 27,750 nursing students with $22.2 million in loans. An estimated 6,400 nursing students benefited from $6.4 million in scholarships.

The PH/NHSC Scholarship Program has already been described in the section on alleviating geographic inequities.

Approximately $9 million was awarded to assist students pursuing various types of public health training. Some $2.3 million was awarded for 55 allied health advanced traineeship continuations. Professional nurse traineeship grants totaling almost $13 million were awarded to 140 educational institutions in 41 states, the District of Columbia, and Puerto Rico. An estimated 3,000 registered nurses will be assisted. Traineeships are awarded to schools for the advanced training of registered nurses as nurse teachers, administrators, supervisors, clinical specialists, and nurse practitioners.

Extender programs. BHM administers several programs to promote the training of selected health-care extenders and increase the availability of medical and dental services. In fiscal 1977, a total of $8.9 million was awarded for nurse practitioner training programs. Of the 57 programs funded, 26 awarded graduates a certificate, 19 a master's degree, 1 a baccalaureate degree, and 11 combined a certificate with credit toward a degree.

Some $8.4 million was awarded to train physician's assistants (P.A.). The 39 grants are expected to support

the training of about 2,500 students, half of whom are scheduled to graduate during the one-year grant period. An estimated 3,550 trainees have graduated from BHM-supported P.A. programs in the five-year period fiscal 1972-76. Three of every four physician's assistants are employed in primary-care settings.

Through the awarding of $4.5 million in dental team practice grants, an estimated 3,000 dental students will be trained in personnel and productivity management concepts which prepare them to organize and manage multiple auxiliary dental practices, including the use of dental extenders. Twenty-three contracts totaling almost $2 million were awarded to dental hygiene and dental assisting programs to train auxiliaries in expanded functions.

Such, then, is the health manpower and planning scene in the United States. No other country has applied greater resources or more sophisticated technology to the solution of its health-care problems, but the problems of this large industrial country are unusually complex.

Conclusions

In the preceding pages we have observed four quite different methods of health manpower planning.

In Colombia, a country with a population of medium size, the cities are reasonably self-sufficient in qualified professional and other health workers as well as health-care training institutions, and though there is a central manpower planning unit in the national health ministry, governmental activities relevant to health manpower are fairly decentralized.

Because of Colombia's varied health structures and problems, the tasks confronting the ministry's Directorate of Manpower are complex and broad in scope. But, as we have noted, several factors make the directorate an effective organization. Among them are the existence of an officially recognized national health system forming a foundation for the directorate's activities; the directorate's formal charter and status within the ministry, which give it good access to decision-making; its well-trained and enterprising staff of specialists in various disciplines; the clear definition of the specific assignments of the directorate's divisions; its excellent information-gathering system, and its close

working relationship with the ministry's Directorate of Health Research, which permits a good exchange of ideas and prevents duplication of research.

In Ecuador, where health manpower planning and indeed integrated health activities at the national level are quite recent and still taking shape, the emphasis throughout governmental activities is on rendering social justice to the nation's disadvantaged. The major task of Ecuador's health manpower planners is thus to achieve compatibility between the institutions which train health workers and the requirements of the country's growing health services for health manpower.

In Honduras, where the Ministry of Public Health and Welfare is the principal provider of health services, there is a well-designed pyramidal system of health care whose base is briefly trained volunteers in the country's hundreds of rural communities. The goal of the ministry's health manpower unit is to provide health workers with the necessary training and in the necessary numbers for each level of this pyramid and to work out any incompatibilities between health-care training institutions and services.

In the United States, with its vast financial, technical, and human resources, the country's health-care

system developed without coordination for a variety of reasons. The role of the federal government in the health sphere has been growing since the mid-1960s, however, largely because since then it has been paying an increasing portion of the nation's health-care bill and so has become anxious to contain ever-rising health-care costs. Within this framework the government's health manpower unit has, since its founding in 1967, carried out the policies laid down by Congress, first to produce more health and especially professional workers, and more recently to insure that the health system emphasizes primary care and that services are adequately distributed throughout the country.

Some or a combination of the four national experiences with health manpower planning reported herein are relevant to most countries trying to extend their health-care programs.

It is clear from these experiences that health manpower planning in an authoritarian sense does not exist in any of the four countries, and thus the work of their health manpower units is more to coordinate and translate policies into action than to decree plans. It is also obvious that partial solutions with respect to health workers--or even health services in general--will not

have any significant effect unless there are also changes in the economic and social spheres.

Meanwhile, it is essential to consolidate and insure the quality of broadening health-care coverage by making well-trained and suitably oriented health workers available to developing health services. Therefore:

1. The continuity and quality of manpower planning must be insured through institutionalization and the provision of skilled planning personnel and legal status to planning units.

2. Health manpower units should initiate courses to train categories of health workers required by developing health systems but not now being trained. Ultimately, however, such training should be entrusted to regular training institutions so that manpower units can devote themselves to research, coordination, evaluation, and planning.

3. To give manpower planning a solid foundation, manpower units should as quickly as possible undertake examinations of the health needs of their countries and the technical consequences of short-term health-care solutions such as the use of auxiliary personnel. They should also draw up plans to increase the production of

such personnel.

4. Manpower units should be located high enough in their ministerial structures to have access to policy formulation.

5. Units such as those we have described are necessary, but even under the best of circumstances their powers seem limited. It is therefore necessary that health manpower planning be extended so that within it are integrated the activities of all health institutions in a country--training centers and particularly universities, professional associations, and service organizations, including those in the private sector. It is similarly necessary to decentralize health manpower planning geographically to insure greater regional and community participation in the process.

To achieve these goals, we recommend the following:

1. The personnel of national health manpower planning units should receive further training in the technical aspects of planning, such training should be reinforced through the continuous supply and coordination of technical information by the Pan American Health Organization, experts and consultants should be exchanged among member countries of the Organization on a short-term basis, and better use should be made of funds from

international sources in coordinating projects related to the training and use of personnel at the national level.

2. The development of new manpower planning concepts and technical tools should be stimulated, and experiments under way should be constantly evaluated so that necessary procedural modifications can be made.

3. Communication between national health manpower planning units should be continuous within the context of the resolution on "Technical Cooperation Among Developing Countries" recently approved by the World Health Assembly and Pan American Sanitary Conference.

Seminar Participants

Tito Alvarado, MD, MPH
Division of Human Resources
Ministry of Public Health and Welfare
Tegucigalpa, Honduras

Jorge Auza, MD, MPH, Chief
Department of Human Resources
Ministry of Public Health and Welfare
La Paz, Bolivia

José L. Barrios, MD, Assistant Director
Department of Health Services
Ministry of Public Health and Welfare
Guatemala, Guatemala

David Bersh Escobar, MD, Professor
School of Public Health
University of Antioquia
Medellín, Colombia

Dora Caballero, Economist
Department of Human Resources
Ministry of Public Health and Welfare
Asunción, Paraguay

José Campos Ochomogo, MD, Director
National Institute of Human Resources for Health
Managua, Nicaragua

Edmundo Granda, MD, Chief
Department of Human Resources
Ministry of Public Health
Quito, Ecuador

Roberto Hernández Elias, MD, Director
School of Public Health
Ministry of Public Health
Havana, Cuba

Arturo Izar-Robles, MD, MPH
Professor, School of Public Health
Advisor, Ministry of Public Health
Mexico City, Mexico

Germán Jiménez Rozo, MD, MPH, Director
Division of Human Resources
Ministry of Public Health
Bogotá, Colombia

Carlyle Guerra de Macedo, MD, Advisor
Human Resources
Pan American Health Organization
Brasília, Brazil
(Designee of the Brazilian Government)

Milagros Maldonado, BAN, MPH, Director
Division of Human Resources
Ministry of Public Health and Welfare
Santo Domingo, Dominican Republic

Juan Vicente Pillet, MD
Regional Advisor on Manpower Planning
Pan American Health Organization/
World Health Organization
Washington, D.C., U.S.A.

Roberto Sempértegui Ontaneda, MD, Acting Chief
Department of Human Resources
Ministry of Public Health
Quito, Ecuador

Haydée Walter, MD, Advisor
Ministry of Public Health
Buenos Aires, Argentina

Host-Country Speakers

COLOMBIA

Luis Fernando Duque
Deputy Minister of Public Health

Carlos Gross, Chief
Division of Manpower Training
Minister of Public Health

Nelly Garzón, Chief
Division of Manpower Planning
Ministry of Public Health

Laurie Cardona
Division of Manpower Planning
Ministry of Public Health

Mauricio García
Division of Manpower Utilization
Ministry of Public Health

ECUADOR

Asdrúbal de la Torre
Minister of Public Health

Hugo Corral Ruélova
Director General of Health
Ministry of Public Health

César Hermida Bustos, Chief
National Planning Division
Ministry of Public Health

Eduardo Estrella, Chief
Social Psychiatry Consultation
Ministry of Public Health

Roberto Sempértegui Ontaneda, Chief
Department of Manpower
Ministry of Public Health

Rosario Padilla, Head
Manpower Information System
Ministry of Public Health

Carlos Mosquera Sánchez, Dean
Faculty of Medical Sciences
Central University

Rodrigo Yepez Niño
Member, Directing Council
Faculty of Medical Sciences
Central University

Georgina de Carrillo, Director
National School of Nursing
Faculty of Medical Sciences
Central University

Fernando Sempértegui
Associate Secretary
Association of Ecuadorian Medical Faculties

Miguel Sánchez, Assistant
Association of Ecuadorian Medical Faculties

Alfredo González, Assistant
Association of Ecuadorian Medical Faculties

Dimitri Barreto
Chief, Research and Training
National Medicosocial Directorate
Ecuadorian Social Security Institute

HONDURAS

Enrique Aguilar Paz
Minister of Public Health and Welfare

Rigoberto Alvarado
Deputy Minister of Public Health and Welfare

Carlos Godoy A.
Director General of Health
Ministry of Public Health and Welfare

Ernesto A. Pinto
Deputy Director General of Health
Ministry of Public Health and Welfare

Hilton Tróchez, Chief
Division of Planning
Ministry of Public Health and Welfare

Jorge Haddad, Chief
Division of Manpower
Ministry of Public Health and Welfare

Gertalina de Ramos
Supervisor, Nursing Education
Ministry of Public Health and Welfare

Emma de García, Coordinator
Auxiliary Nursing Program
Ministry of Public Health and Welfare

Alfonsina de Abarca, Instructor
Auxiliary Nursing Program
Ministry of Public Health and Welfare

Concepción Segura, Coordinator
Laboratory Technician Program
Ministry of Public Health and Welfare

Moisés Sánchez, Coordinator
Nutrition Technician Program
Ministry of Public Health and Welfare

Donaldo Cáceres, Coordinator
Radiology Technician Program
Ministry of Public Health and Welfare

Iris de Malo, Coordinator
Laboratory Technician Program
Ministry of Public Health and Welfare

Rina Andino, Chief
Educational Materials Production Unit
Ministry of Public Health and Welfare

Oscar Molina, Chief
Health Region No. 4
Ministry of Public Health and Welfare

Martha de Aronne, Director
Southern Training Center
Ministry of Public Health and Welfare

Teaching Staff
Southern Training Center
Ministry of Public Health and Welfare

UNITED STATES

S. Paul Ehrlich, Jr., Director
Office of International Health
U.S. Public Health Service

Harold Margulies, Deputy Director
Health Resources Administration
U.S. Public Health Service

Daniel F. Whiteside, Director
Bureau of Health Manpower
Health Resources Administration

William H. Cope
Special Assistant to the Director (International Affairs)
Bureau of Health Manpower

Frank Sis
Information Officer
Bureau of Health Manpower

Thomas D. Hatch, Director
Division of Associated Health Professions
Bureau of Health Manpower

William J. Holland, Assistant Chief
Manpower Utilization Branch
Division of Associated Health Professions

Nathan Watzman
Associate Director for Regional Programs
Division of Associated Health Professions

Jessie M. Scott, Director
Division of Nursing
Bureau of Health Manpower

Mary S. Hill, Chief
Nursing Education Branch
Division of Nursing

Alice S. Hilfiker, Consulting Nurse
Advanced Nurse Training Program
Division of Nursing

Delores M. LeHoty, Program Analyst
Manpower Analysis and Resources Branch
Division of Nursing

Margaret F. Sheehan, Chief
Nurse Practitioner Program
Division of Nursing

Susan R. Gortner, Chief
Nursing Research Branch
Division of Nursing

Robert F. Knouss, Director
Division of Medicine
Bureau of Health Manpower

George R. Halter, Chief
Professional Education and Development Branch
Division of Medicine

William E. Bennett, Chief
Institutional Resources Branch
Division of Medicine

David R. McNutt, Chief
Manpower Supply and Utilization Branch
Division of Medicine

F. Anthony Pollitt, Sociologist
Manpower Supply and Utilization Branch
Division of Medicine

Itzhak Jacoby, Economist
Manpower Supply and Utilization Branch
Division of Medicine

Leticia Diaz
Public Health Service Fellow
Division of Medicine

Betty A. Lockett, Chief
International Programs Staff
Division of Medicine

Pamela C. Roddy
Health Scientist Administrator
Division of Medicine

Thomas L. Louden, Director
Division of Dentistry
Bureau of Health Manpower

Richard G. Weaver, Chief
Education Development Branch
Division of Dentistry

Preston A. Littleton, Jr., Chief
Manpower Analysis Branch
Division of Dentistry

Donald H. Blandford, Acting Chief
Productivity Studies Branch
Division of Dentistry

Nancy A. Paquin, Chief
Delivery Systems Branch
Division of Dentistry

Howard V. Stambler, Chief
Manpower Analysis Branch
Bureau of Health Manpower

Frank A. Morrone, Director
Division of Planning Methods and Technology
Bureau of Health Planning and Resources Development
Health Resources Administration

* U.S. GOVERNMENT PRINTING OFFICE : 1978 O - 273-698